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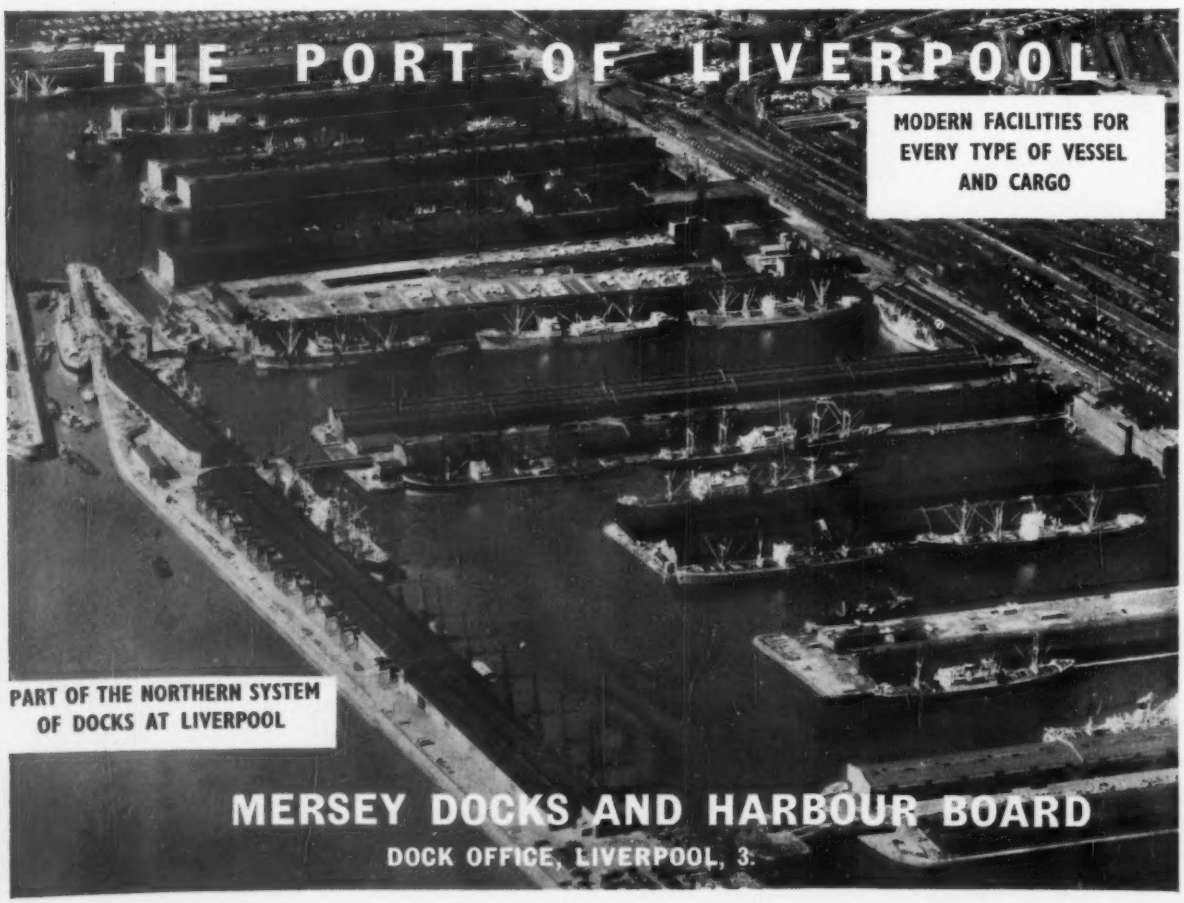
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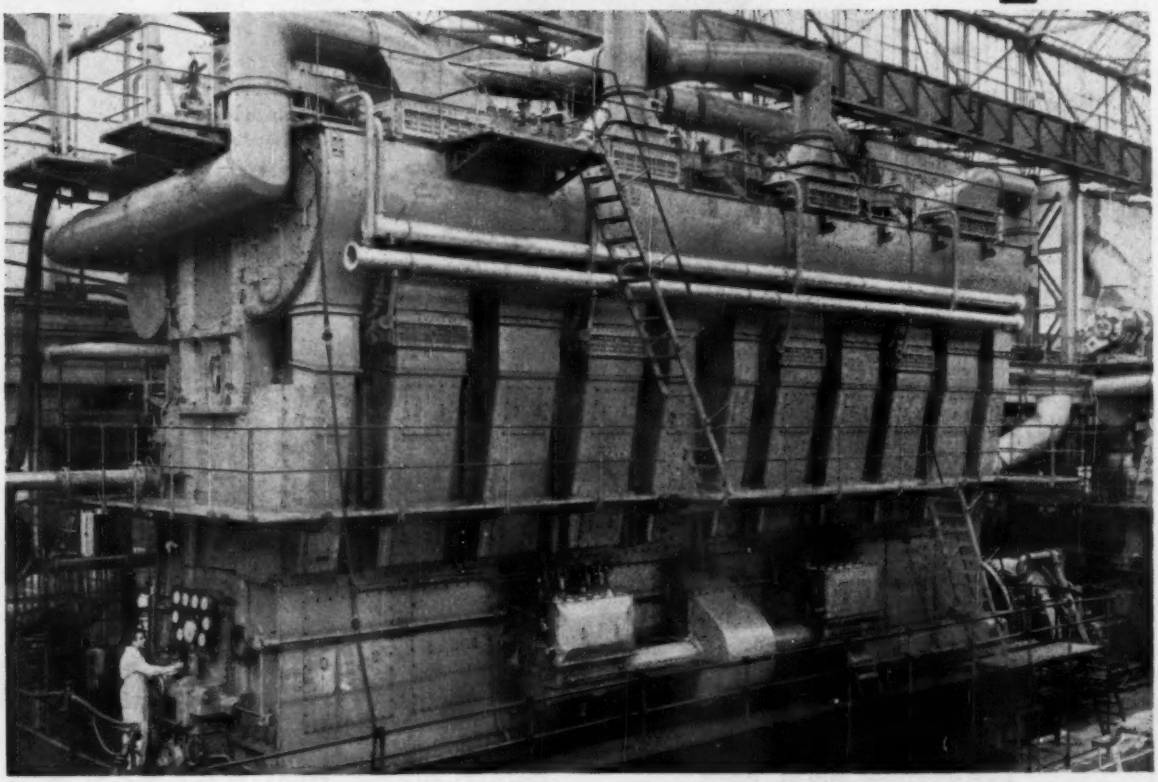

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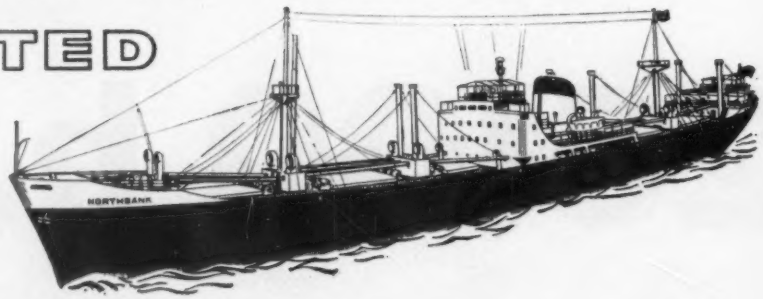

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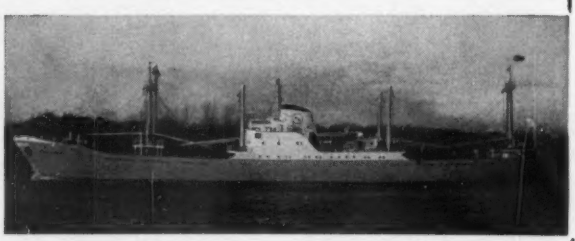

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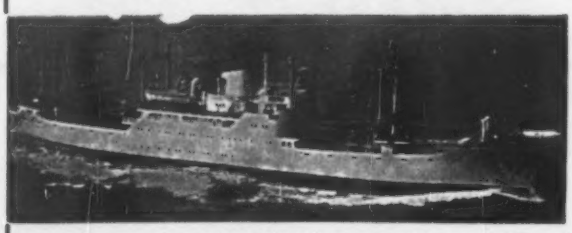

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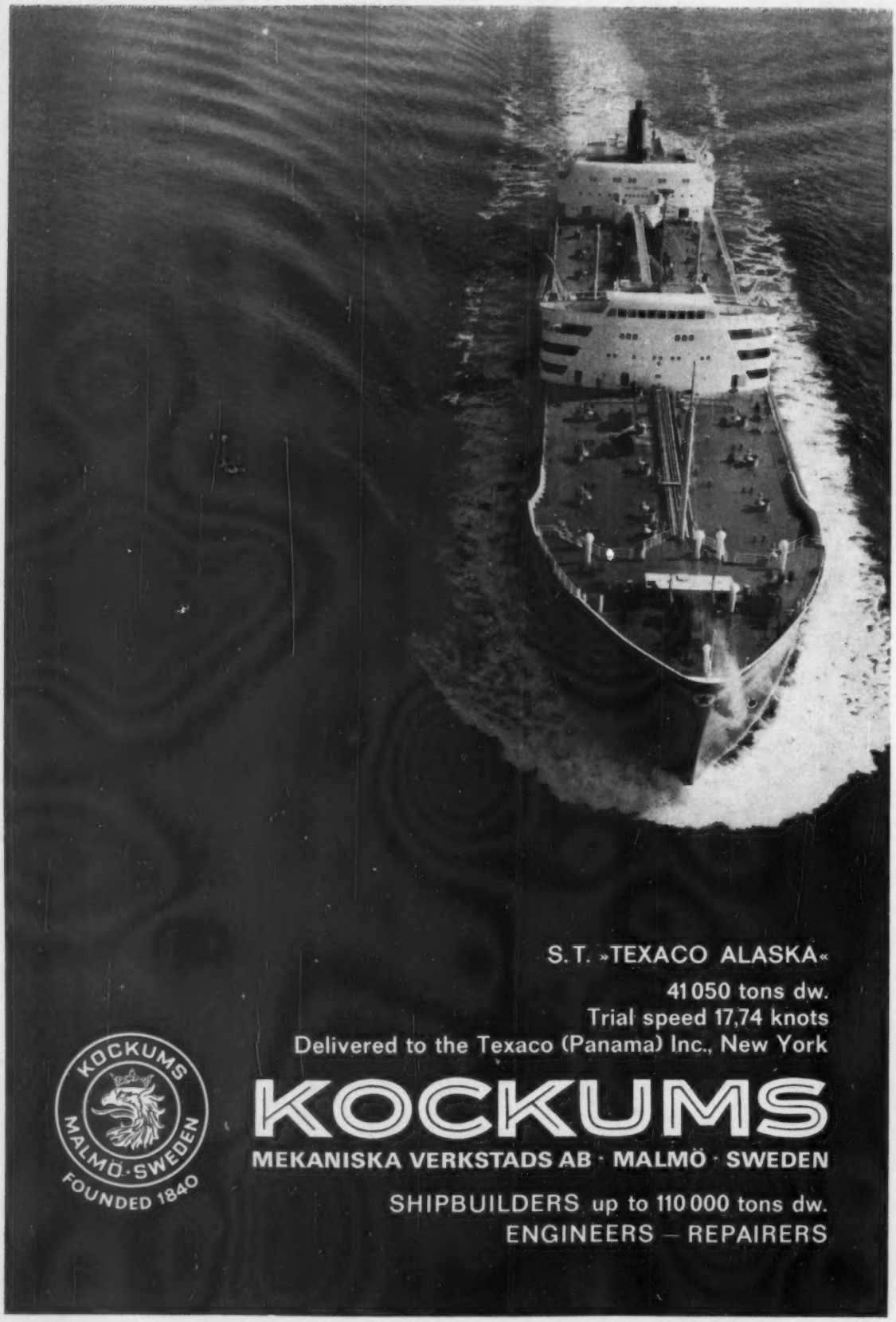
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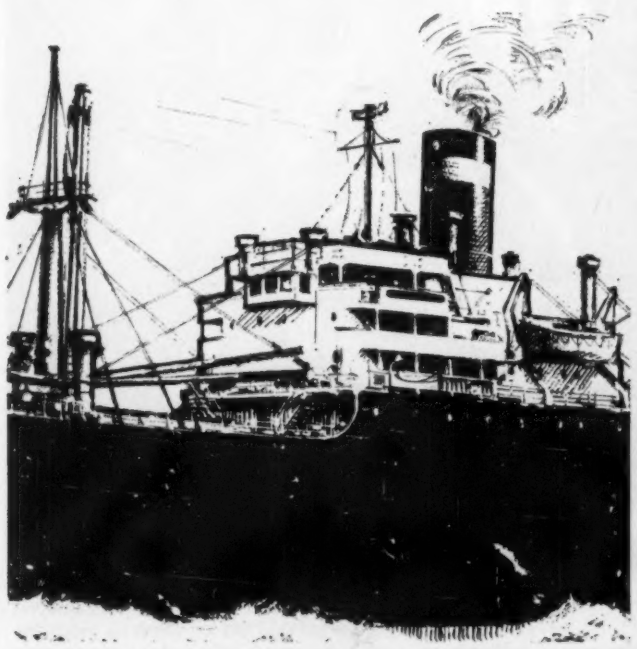

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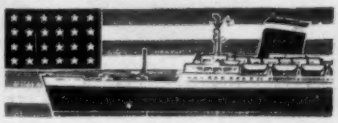

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THE SHIPPING WORLD

THE SWING TOWARDS AUTOMATION

On both sides of the Atlantic, there are signs of a growing trend towards automation in ships, and particularly in engine rooms. The Americans, of course, never do things by halves; and when they announced a programme by the U.S. Maritime Adminstration designed to lead to a fully automated ship, they suggested that the ideal towards which they were aiming was the ship that can proceed without crew from pilot station to pilot station. This may have given a science fiction touch to what is in the main a perfectly practical idea, but later a spokesman of the Maritime Administration admitted that the idea of dispensing with watchkeepers on the bridge was probably not desirable. The latest American move is on a more reasonable scale: the Maritime Administration has invited American manufacturers to submit plans for a steam turbine propulsion plant which would have a higher degree of mechanisation than is currently possible. Planned in four phases, this programme is designed to lead up to the availability of such a plant for installation in a ship in 1963.

In Europe, the incentive to automation is not quite as high, as the cost of manpower is relatively less. But in fact moves are being made in this direction. One milestone has been reached with the new French Shell tanker *Sitala*, soon to be described in The Shipping World, in which steam turbine propelling machinery with a total output of 24,000 shp can be controlled from the bridge. French engine rooms are manned on a rather more restricted scale than those of British ships, so that there is a greater inducement to relieve the engineroom staff of work. However, other European countries are moving in the same direction. In Norway, the Marine Technical Research Institute at Trondheim is working on a project for a tanker which will employ a high degree of automation. In a large Norwegian tanker today, six officers and from nine to 12 men are occupied mainly in routine watchkeeping when the ship is at sea. This project envisages the centralisation of all operational control in a central control room, thus releasing from six to nine men for other duties.

As far as is known there is no comparable study in progress in the United Kingdom, but there is plenty of practical experience of the remote control of machinery. This experience is being gained by the Admiralty, as the risk of contamination from atomic fall-out has made it necessary for warships to have machinery control rooms separate from the machinery spaces. On a smaller scale, of course, warships with high-speed diesel machinery have separate control rooms, not so much for reasons connected with nuclear war as out of consideration for engineers' ear drums. The nearest thing to merchant ships with remote control of machinery in Britain are the fleet replenishment tankers of the *Tide* class, which are built to Lloyd's Register requirements and manned by Merchant Navy personnel, their steam turbine machinery being based on that of the BP Tanker Company's *British Adventure* class.

Automation is of course a gradual process. The automatic control of boilers, which 15 years ago was unusual in British ships, is now commonplace. It is, indeed, a necessary preliminary to the bridge control of steam propelling machinery. But as automation proceeds, it will tend to bring with it greater complexity of equipment, and at a time when the shortage of seagoing engineers is beginning to be serious the advantages of one must be set against the disadvantages of the other. The correct balance has yet to be found, but there seems little doubt the next decade will see much more fully automated ships than we know at present.

Current Events

Too Much Prefabrication?

Is there an economic limit to the size and weight of sub-assemblies welded in prefabrication sheds before assembly as units on the shipbuilding berth? Speaking to a representative of The Shipping World in London last week Herr W. H. Schlieker, the well-known industrialist and shipbuilder, whose yard at Hamburg is recognised as being one of the most modern in the world, certainly gave the impression that this had been his experience. Large hull assemblies have to be welded in three dimensions, which meant that they had to be turned over, and the heavier these became the more liable they were to suffer distortion, which did not become noticeable until the assembly was on the berth to be joined to its neighbour. At this stage the correction of distortion of a large assembly is a costly and laborious process. Herr Schlieker thought it might be preferable to prefabricate in smaller sections than the largest which can be handled, with welding in two dimensions only, the third-dimension welding being carried out on the berth. The use of smaller sec-

tions, and the return of some of the welding work from the prefabrication shed to the berth, would, of course, simplify and cheapen handling problems. On the other hand, this method must increase the time during which the building berth is occupied by the vessel, and would lead to the need for more cover over the berths, possibly using a sliding roof system. Incidentally Herr Schlieker, like the chairman of the Salvage Association (see below), welcomed the unification of the steel requirements of the principal classification societies, as an opportunity to reduce inventory costs. He would also like to see closer agreement between the specifications of the main societies in respect of requirements for certain parts of the hull structure.

Cost of Ship Repairs

At the 105th annual general meeting of the Salvage Association the chairman, Mr P. H. Mitchell, referred to the cost of shiprepairing. In the past, he said, there had been a tendency to base estimates of increases in cost on a comparison of the previous year's cost of a particular piece of work with the current cost of a similar piece of work. So far as it went, this was arithmetically correct. Today, however, in calculating the current cost of repairing a ship, which for instance had been flooded, and comparing it with the cost of a few years previously, it was not sufficient merely to add a percentage to represent the increased cost of labour and materials. Ships today contained much specialised equipment and a greater proportion of electrical apparatus particularly susceptible to water damage. The accommodation today was often of better materials and finish. The specialised equipment had either to be returned to manufacturers for reconditioning or specialists had to travel to the job and be housed and maintained while there—all contributing fresh variants and adding considerably to the cost. If design could be simplified and greater standardisation achieved in materials and fittings, not only would there be a reduction in repair costs, but also in the cost of building and maintenance. Mr Mitchell thought that the agreement recently reached between the principal classification societies towards unification in their requirements for shipbuilding steel was a welcome step in this direction.

Effect of Rating Increases

Mr C. R. Connell, a director of Charles Connell & Co Ltd, declared last week that increases in local rates, along with an advance of more than 10 per cent in local electricity charges during the past six months, would have the effect of adding £10,000 to the cost of the hull of a new tramp ship. The yard, in the face of extreme difficulty, has booked new work recently at fixed prices which do not include these increased charges. "These local advances are a very serious matter for us," Mr. Connell continued, "especially when it is remembered that the hull, for which we are responsible, accounts for only 40 per cent of the total cost of a ship. The propelling machinery and all the other materials obtained from sub-contracting firms in the Glasgow area will also have to bear proportionate increases. Moreover, working hours in the shipbuilding industry were reduced last year from 44 to 42 per week, and a pay increase of 4½ per cent was granted this year. When these concessions are taken into consideration along with the forthcoming 41 per cent increase in the employers' share of National Insurance contributions, there will be a total addition of at least £30,000 to the cost of a new tramp's hull. "These facts give some idea of the heavy odds with which shipbuilding firms are having to contend in their fight to secure new work, and they demonstrate that contracts recently taken at fixed prices and with no margin will certainly result in losses." The effect of the abolition of the 50 per cent industrial derating relief, which is proposed for 1963, will be another serious blow for British shipbuilding firms in their efforts to be competitive with other countries. It is, unfortunately, significant of the present position that of some 50 new shipbuilding contracts placed recently by Norway not one came to the United Kingdom.

Safety of Lifejackets at Sea

An independent report, edited and submitted to Members of Parliament by Uffa Fox, brings to notice the shortcomings of the present regulations for Ministry of Transport lifejackets. The report covers the research that has taken place on the subject up to the present and presses for urgent legislation to provide more efficient lifesaving apparel than at present approved by the Ministry and the International Convention. It is claimed that research has shown conclusively that cork and kapok lifejackets are outdated. Present approved types of these jackets do not float the survivor in a 45-degrees position. Instead they float him in an upright position. In this position he can tip forward on to his face or mouth and nose and can become submerged by constant ducking in the waves. Another hazard is that they are too bulky to work in and the cork type could, in certain circumstances, break the survivor's neck. One type of lifejacket, principally used by yachtsmen and workmen, is the Marksway. This is a jacket which has air-filled pockets which are instantly sealed on contact with water. It floats a man at the correct 45-degrees position and will quickly turn him on to his back from a face down position in the water. Extensive tests have taken place with this jacket, all of which it has passed with flying colours, but it is said that the Ministry will not give its approval to Marksway jackets because they rely on air compartments for flotation, even though tests show that several panels can be destroyed before there is any appreciable loss of buoyancy. Inflatable lifejackets were in fact approved by the 1960 Safety of Life at Sea Convention for crews of dry cargo ships (but not, for obvious reasons, for those of tankers). The Ministry of Transport is understood to be prepared to approve such jackets provided they meet certain requirements. However a question on the subject is being asked in the House of Commons today, and this may elicit further information.

Sales to Japanese Breakers

The main feature of the ship sale and purchase market in recent weeks has been the considerable measure of interest in scrap tonnage by Japanese shipbreakers. The most significant sale was that of the Panamanian motorship *Totila*, with a 3,450-tons light displacement, at £70,500, which works out at £20 8s 6d per ton on the light weight. This seems to be the highest price paid by shipbreakers the world over for some considerable time. Recently the *Clan Macbrayne* realised about £20 on the light weight per ton, and in this case, as with the *Totila*, delivery was to be prompt at a Japanese port. Several Shell tankers are known to have gone to Japanese breakers for something over £17 per ton light displacement, with delivery Singapore, and the difference of perhaps £3 per ton is obviously relative to the cost of delivering the ship to a Japanese port. In terms of bigger ships, Japanese breakers have recently taken delivery of the P & O liner *Carthage* at London, and she is now making the voyage to a Japanese scrapyard under the name *Carthage Maru*. Now her companion liner, the *Corfu* (14,280 grt) which left Hong Kong on March 9 for London on her last voyage for P & O has been sold to the Japanese for scrap. They will be taking delivery in London again, but this has become quite usual with big ship purchases by

Japanese breakers in recent years. The famous *Ile de France* made the Japan-bound passage under the name *Furanzu Maru*, and various others have made the same voyage under the Japanese flag. The exception was the *Winchester Castle*, which Union-Castle arranged to deliver to a Japanese port, and of course obtained the benefit of the higher price. If present indications are anything to go by we will see a lot more ships heading for Japanese scrapyards in the near future, as long as they do not run into currency trouble.

The "Oriana's" Maiden Voyage

WHAT is possibly the longest maiden voyage on record ended on March 24 when the P & O-Orient liner *Oriana* berthed at Southampton, from which port she sailed on December 3, 1960. Since then she has steamed some 45,000 miles and has called at 15 different ports in eleven countries. She also undertook a ten-days' Australian coastal cruise from Sydney. When she arrived at Southampton she disembarked over 1,800 passengers, probably the largest number of passengers from Australia and the U.S. West Coast ever to arrive at the port in one ship. In all, the *Oriana* has carried about 7,500 passengers (including the Australian coastal cruise) since her 3½-months' maiden voyage began. Her maximum passenger capacity is 2,184. The vessel proved an outstanding success at all the places she visited, and aroused more interest and excitement than any passenger liner since before the last war. Passengers have praised her impeccable seakeeping qualities and comfort, and her distinctive appearance and many unusual features have been widely acclaimed in Australia, Canada and the United States. In Sydney she was the first ship to use the new passenger shipping terminal at Sydney Cove which has been specially built to handle the *Oriana* and the *Canberra*, due to join her on the same run in June. The arrival of the *Canberra* into service, however, will coincide with the withdrawal of the well-known turbo-electric one-class vessel *Strathaird* (22,568 grt, built 1931), although the even older *Strathnaver* and *Orontes* will for the time being remain in service.

CANTAT

THE TWO trans-Atlantic telephone cables now in existence, crossing the Atlantic from Newfoundland to Oban in Scotland and to Penmarch in France, are known respectively at TAT 1 and TAT 2. By the coming autumn they will be joined by a further telephone cable known as CANTAT, which will be the start of a British Commonwealth telephone cable system due to extend across the Pacific to Australia and New Zealand by 1964. Like TAT 1, CANTAT will run between Oban and Newfoundland, but at the western end it will follow a more northerly route to Quebec and Montreal. As the facilities for speech by cable grow, the existing radio-telephone facilities—liable to interruption by weather conditions—will become of less importance. The transmission of speech over long distances by cable is of course a much more difficult process than telegraphy transmission, and repeaters to amplify the signals have to be included in the cable at intervals. For the Atlantic crossing, TAT 1 and TAT 2 use an American repeater which is flexible enough to pass through the cable-laying machinery, but carries a maximum of 36 circuits in one direction only and thus necessitates the use of two cables for each link. CANTAT will employ the British repeater, which is rigid and presents more of a problem when laying, but carries 60 circuits in both directions. These repeaters were tried out on the short section of TAT 1 and TAT 2 linking Newfoundland and Nova Scotia, and have proved very successful since they were laid in 1956. Several improvements developed since then will be incorporated in the repeaters for CANTAT, 90 of which are required for the trans-Atlantic section.

Modifications to the "Monarch"

CANTAT will be laid during this coming spring and summer in a series of three lays by the Post Office cable ship *Monarch*, which is at present loading the cable and splicing in the repeaters off the Telcon cable works at Greenwich. The link will be owned jointly by Cable & Wireless Ltd and the Canadian Overseas Telecommunication Corporation, but the main responsibility for design and engineering was assigned to a joint unit of the Post Office and Cable & Wireless. Except in comparatively shallow water, where the normal armoured cable will be used, the cable for CANTAT will be of a new type developed by the Post Office which weighs only one-fifth as much as the armoured cable, and because its strength comes from a central non-twisting core it is much easier to recover when this is necessary. The outer covering, and the internal insulation, is of polythene. The *Monarch* was fitted during her last refit at the Hebburn yard of Vickers-Armstrongs with the stern gear required for laying cable with rigid repeaters. With this gear the repeater is diverted from the laying wheels and runs in a trough alongside, while a bypass rope of steel wire takes its place round the wheels and maintains tension. The system works well, though it is necessary to reduce speed while the repeater is being laid. Since her completion in 1946 the 8,000-grt *Monarch* has been the largest cable ship in the world, and she will retain this honour until the completion of the American cable ship on order in Germany. In her last two annual refits she has been considerably modified internally, with officers' and crew's accommodation rebuilt to modern standard of comfort. A Voith-Schneider bow propeller was fitted last year, and an additional radar set (a Decca TM909) this time. For the trans-Atlantic lay she has been fitted temporarily with the Dectra position-fixing system and a marine plotter.

Towage Risks

FEW shipowners in the ordinary course of their business occasion to consider insuring vessels in tow, but, as one of the great marine insurance markets of the world such insurances do come before the marine underwriters in London fairly frequently. They are usually placed with certain groups of underwriters who tend to specialise in this type of insurance. Such business varies from the towing of a disabled vessel to a port of repair, or a hulk to the breaker's yard, to the delivery tow of a new floating dry dock or dredger halfway round the world or moving an oil drilling rig to a fresh offshore drilling site; an infinite variety of risk and navigational hazards, all quite outside the usual cover under a vessel's hull insurance of "customary towage in connection with loading and discharging and towing a vessel or craft in distress". At a recent meeting of the Marine Discussion Group of the Insurance Institute of London, Mr John Ridgers, an underwriter at Lloyd's and an acknowledged specialist in insurances of this kind, presented a paper on the underwriting problems of towage risks. He explained that a major influence in underwriting these insurances was the experience of the towage contractors. Every towing risk has to be rated on its merits and it is imperative to the underwriters that the services of experts be enlisted to advise on safety and other requirements. Weather conditions to be expected on the proposed voyage, and opinions on the stability of the structure under open sea conditions and seaworthiness, are all material information in rating towing risks.

ON THE "BALTIC"

MARGINAL DIFFERENCES BETWEEN SUPPLY AND DEMAND

By BALTRADER

A short supply of tonnage in any given area does not always make a strong market; cargoes may also be lacking in large numbers. It is sometimes surprising, however, how much strength or weakness may be imparted to freights by a marginal difference between supply and demand. Today there is comparatively little tonnage available in home waters during the rest of March or the whole of April, but freights from the Western Atlantic to the United Kingdom or near Continent are barely steady; grain cargoes from North America to the United Kingdom are few and far between; similar cargoes come to the Continental ports, mostly in tankers at low rates. On the other hand, charterers are finding it difficult to interest owners of the vessels which are in a suitable position for early cargoes from Cuba and the United States to the East and Far East. Rates have lately risen steeply for sugar from Cuba to China, as also to Ceylon; the rate from Cuba to the Black Sea remains fully steady after a steady stream of tonnage has already been chartered. It is, by the way, interesting that in spite of the unsettling recent events in Cuba so much sugar can be shipped, as represented by the numerous charters which are constantly being arranged.

Presumably the export of sugar from Cuba is not being increased, but re-directed to new markets, mostly Communist, instead of to the United States as formerly. The increase of employment with carriage of Cuban sugar arising from the longer voyages which are involved is, of course, of assistance to tramp shipowners. They have for some years missed the cargoes which are now carried regularly to the United Kingdom in the merchants' own fleet of vessels specially designed for the carriage of sugar in bulk. As the years pass one notices a tendency for large operators to build their own ships to carry at any rate part of their cargoes, particularly leading shippers of ore and grain. Similarly, several of the big liner companies have bought up a tramp fleet lock, stock and barrel. They operate the ships on the open tramp market or employ then on their own berths according to circumstances. There are times when there is more money to be made by tramping than on liner berths and, of course, there is the whole world open to the tramp ship, while a particular liner route may be less busy than usual.

Suitable Type of Ship

These considerations apply particularly to the type of ship suitable for liner requirements but designed to a reasonably economical specification. The very fast turbine cargo liner with a forest of powerful deck gear and other expensive refinements is not likely to find suitable outside employment except in the service of another regular line. To judge by the number of ships which are taken on time charter by the liner companies, the modern tramp vessel is well able to take her place in the regular line and is evidently a most useful supplement. Cargo accumulates in greater quantity than the liners can deal with; it is then that the tramp ship can often secure a very satisfactory rate of hire by virtue of being in the right position at the right time. Tramp ships are being built more and more with a good turn of speed, which makes them more attractive for the liner trades. They are also, of course, growing in size and the lines are now occasionally time chartering in case of need ships of up to 13,000 tons deadweight.

The comparative level of freights in the Atlantic and Pacific is shown by fixtures in the past few days such as Hampton Roads to Japan at $8.90 for a vessel as large at 19,000 tons, while from North Pacific to India 60s has been accepted for wheat, which is 7s 6d per ton less than was paid a short while ago. There is at present too much tonnage moving in the direction of the Far East and too little employment to distribute ships in other areas. Some help is given by the extensive operations of the Russian charterers, who are still in the market for tonnage to lift sugar in Cuba for Russian destinations and return to Cuba with general cargo. For this purpose they have been taking ships both on voyage and on time charter basis. One advantage of the larger ships which are going or will go to the Far East is that after discharge they can scatter more effectively than smaller ships; their owners can afford to send them away in ballast for great distances, especially if a good rate has been earned on the Eastward voyage.

The Freight Markets

The Eastern markets showed further signs of weakness last week and consequently rates from this side to such countries as China and Japan showed a tendency to rise. The trans-Atlantic grain trades showed little change but fixtures included the tanker *Point Lacre* with heavy grain from the Great Lakes to Antwerp, Rotterdam or Amsterdam at $8 f.i.o. with St Lawrence completion at $3, April 20/May 10. The *Nieuwe Tonge* was fixed with wheat from the St Lawrence to Poland at $5.15 free discharge for April/May, and the *Aegean Sun* was fixed with heavy grain from Albany, completing New York, to the Spanish Atlantic at $6.75 free discharge, option Spanish Mediterranean discharge at $7.25, April 4/20. The *Grecian Valour* was fixed with heavy grain from the U.S. Gulf to West Coast India at the unchanged rate of 73s 9d free discharge, option East Coast India at 76s 3d, May 5/29, but the main feature at the end of the week was the reported fixture of heavy grain from the U.S. Gulf to Japan at the improved rate of $10.75 free discharge for April/May loading. The *Doris* was taken for heavy grain from the U.S. Gulf to London at 53s 6d, option Hull discharge at 56s, April 10/18.

After the previous week's activity the scrap trades were quieter but fixtures included a Livanos vessel from the U.S. North of Hatteras to Japan at $120,000 f.i.o., April 25/May 10. Tonnage was fixed for April and April/May loading with bagged sugar from Cuba to South China at the higher rate of 105s f.i.o. and free taxes.

The River Plate market was quiet but on the South African market fixtures included a vessel with bulk sugar from Durban to London or Liverpool at 65s 6d current rate discharge, option Antwerp, Rotterdam or Amsterdam at 6s less with free discharge, April 28/May 25, and *Leeds City* with maize from Durban to three ports Moji/Tokyo range at 63s free discharge, option East London loading at 65s 6d, April 24/May 13. The Australian market was very quiet.

Timecharter fixtures included *Roland* (ms), 12,830 dwt, 597,000 cu ft bale, 14 knots on 19 tons fuel oil plus 1 ton diesel, at 23s 6d per ton, delivery Cuba, 7/10 months trading, April 5/22, and *Errington Court* (ms), 10,940 dwt, 574,000 cu ft bale, 12 knots on 13 tons diesel oil, at 20s 6d per ton, delivery London redelivery U.K./Continent, one West African round, April 10/15.

NEWS FROM OVERSEAS

From THE SHIPPING WORLD'S Own Correspondents

American Shipping Bill

HEARINGS have opened in Washington on the Bill now pending before the House of Representatives to legalise steamship conferences and end the long period of uncertainty which began in 1958 when the Supreme Court found a dual rate contract employed by one conference illegal, and raised serious questions as to the permissibility under United States law of any such "tying device." Strong opposition to the Bill and to dual rate practices in general has been voiced by the Department of Justice in the hearings, while the Department of Agriculture has reversed its long stand against the device in testimony by Secretary of Agriculture Orville L. Freeman. Spokesmen for the shipping industry, however, have stated that, while they favour both conferences and the dual rate plan, they oppose the present Bill on a number of grounds.

American Orders

Texaco, Inc, has ordered from the Bethlehem Sparrows Point yard five tankers of 25,300 dwt each. Designed for coastwise service under American registry, the 17½-knots ships will replace T2s built during the war. They are the first tankers ordered in the United States since 1957. An application for construction-differential subsidy assistance in the construction of two ore ships of 51,400 dwt each has been filed by the Bethlehem Steel Corporation. Suitable for carrying iron ore, manganese, chrome ore and coal, the new ships would be 766ft long overall, with a speed of 16½ knots. They would be operated in U.S. foreign trade under the U.S. flag, a fact which qualifies them for construction subsidy; but would not be eligible for operating-differential subsidy, since they would not be in common carrier service.

The Luckenbach Steamship Company, which recently withdrew from the Intercoastal trade after 110 years, has sold two of its ships to the newly-formed Overseas Carriers Corporation, an affiliate of Maritime Overseas Corporation of New York, to which it has turned over its remaining fleet for operation in world tramping. The ships sold are the C3-type cargo ship *Robert Luckenbach* (for $950,000) and the inactivated aircraft carrier *Chenango* (for $650,000), one of two such vessels which the company had purchased for jumboising and conversion to a container ship on its now abandoned route.

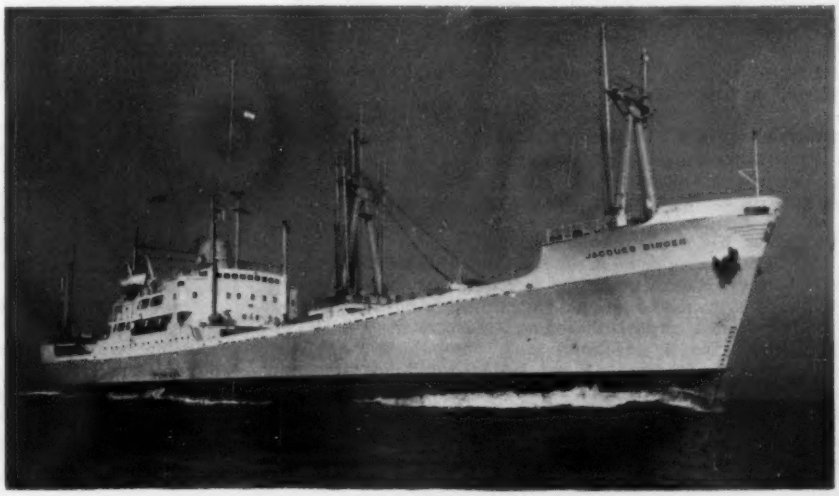
Norwegian Yards Report

Two more reports and balance sheets from Norwegian shipbuilding yards have been published recently. One, from Kristiansands Mek. Verksted is very optimistic, while the other, from Kaldnes mek. Verksted, is not quite so favourable. The former states in its annual report that 1960 was a very good year. Despite keen competition the yard had enough to keep all its repair facilities fully employed all the year. The large new dock was used for repair work for 50 days up to February 23, when the keel of a large vessel was laid. This vessel has now been launched and the dock is again in use for repair work until the autumn, when a new keel will be laid. The yard has now completed its expansion and some new machinery has been obtained. The report also states that 1960 was a good year for the affiliated companies Aluminiumsbater (Kristiansand), Alboat A/S (Helsingor, Denmark) and Hollen Skipsverft (a little to the west of Kristiansand). The report from Kaldnes mek. Verksted says that there has been some demand for new tankers but their sizes have all been of an order which the yard cannot build (Kaldnes has built and can build tankers of 28,000 dwt). Bulk carrier and dry cargo vessels, on the other hand, are not too big, but the prices offered are such that the yard cannot compete.

More Norwegian Orders

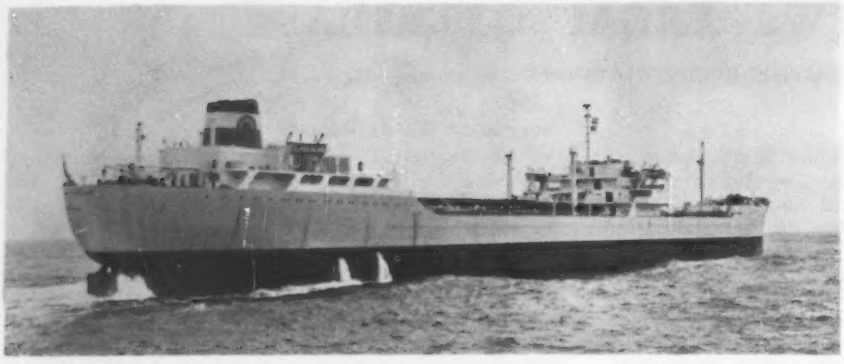
MORE orders for Norwegian owners have been announced recently. The most interesting is one for a tanker of 42,000 dwt signed between Akers mek. Verksted and Mr Georg Vefling, Tonsberg. The vessel is to be delivered in the fourth quarter of 1963 and will be fitted with an oil engine developing 16,800 bhp. The vessel will be built in cooperation with the other member yards in the Aker group as well as in cooperation with yards outside the group. This is the second order of this size of tanker to be placed with the Aker group. The first was placed by N. R. Bugge, Tonsberg. The tanker ordered by Mr Vefling has already been fixed on a seven-years time charter to Caltex at 17s 3d.

Uddevallavarvet, Sweden, has obtained two orders from Norwegian owners recently. William Hansens Rederi, Bergen, has ordered a bulk carrier of 17,700 dwt for delivery 1962-63, and a similar bulk carrier was recently



FRENCH-BUILT CARGO LINER

The Compagnie des Bateaux à Vapeur du Nord has taken delivery of the cargo liner "Jacques Bingen". This vessel has been designed to carry 6,200 dwt as an open and 8,200 dwt as a closed shelter-decker, and was built by the Chantiers et Ateliers de Provence, Port-de-Bouc. The principal dimensions are length b.p. 393ft 8in, breadth moulded 55ft 9in, depth 33ft 1in and draught 26ft 3in. The propelling machinery consists of a four-cylinder Provence/Doxford diesel engine developing 5,200 bhp at 138 rpm



TANKER FOR IRAN

The turbine tanker "Farah Pahlavi," 53,900 dwt, is the first of a pair to be built by the Chantiers de l'Atlantique for the National Iranian Tanker Company. Launched as the "Darius the Great", the principal dimensions are length b.p. 749ft 4in, length overall 785ft 10in, moulded breadth 102ft, depth 53ft draught loaded 39ft 3½in. The propelling machinery consists of a set of Atlantique/CEM-Parsons geared turbines developing a maximum power of 19,300 shp at 105 rpm. A sister ship the "Reza Pahlavi" (ex "Cyrus the Great"), is at present being fitted out at the yard

ordered by Mr Einar Saanum, Mandal, for delivery in October 1962. The contract price for this vessel is Kr21 mn. Hjalmar Roed & Co, Tonsberg, have ordered a bulk carrier of 16,000 dwt from Deutsche Werft, Hamburg, to be delivered in April 1963.

Work For Japan

JAPANESE owners had 17 tankers totalling 948,000 dwt on order or under construction on February 1, according to a survey by a tanker group. At the same time the tanker fleet comprised 97 tankers of 5,000 dwt or above, totalling 2,337,697 dwt, or 1,522,189 grt. The two smallest of the 17 tankers on order or under construction were of 33,800 dwt and 40,200 dwt respectively. All the rest were well over 46,000 dwt, and included one of 50,000 dwt and two each of 130,000 dwt. A total of 16 owners were concerned in the orders. In one case NYK and Kyoei Tanker Co were listed as joint orderers of a 48,300-dwt tanker.

The Jayanti Shipping Co, of India, was reported to be exploring possibilities for the construction in Japan of eight bulk carriers, each of 30,000 dwt, and five dry-cargo vessels, each of 12,000 to 14,000 dwt, on a long-term payment basis. And reports from South Africa said that an order placed in Japan by that country for a 1,550-grt icebreaker research vessel for the Antarctic had been sharply criticised in Parliament. It was contended that the vessel could have been built in South Africa. The Minister of Transport pointed out, however, that the Japanese quotation was the lowest, delivery in 12 months was guaranteed, and Japan had agreed to buy South African products of a value greater than the $297,000 cost of the vessel.

BOOK REVIEWS

The Tanker Register. (H. Clarkson & Co Ltd, 52 Bishopsgate, London EC2. Price £10 post free.)

The last edition of the Esso Shipping Company's *Register of Tank Vessels of the World* was published in 1957. H. Clarkson & Co Ltd has now assumed responsibility for this publication, and the new volume appears under the title *The Tanker Register*. The 1960 edition is similar to the Esso 1957 edition, containing full details of dimensions, cargo carrying capacity, speed, machinery, equipment, etc, of every tank vessel in the world of 6,000 tons deadweight or above. Ships are listed alphabetically for easy, rapid reference. There is a separate section listing owners and managers of oil tankers, with the names of their ships grouped under each. *The Tanker Register* is an indispensable book of reference for all concerned with the operation of oil transport. Oil companies, shipowners, shipbuilders and shipbrokers will find the Register invaluable and the information in it will also be of use to all others connected with the tanker trade or providing supplies and services to tank vessels.

Shipbuilding, by R. Serbutt. (Frederick Muller Ltd, 110 Fleet Street, London, EC4. Price 9s 6d.)

This reasonably priced addition to the Mechanical Age Library is intended as an introduction to shipbuilding for someone who has no knowledge of the subject, and the idea throughout has been to emphasise the principles underlying the subject, keeping detail in the background. In this the author has been successful, despite the fact some processes, such as the work of the mould loft, are complicated to describe. There are a good many useful illustrations and diagrams.

Coastal Passenger Steamers and Inland Navigations in the North of Ireland, by Dr D. B. McNeill (Belfast Museum and Art Gallery, Belfast. Price 3s 6d).

This is the third in a series of transport handbooks to be published by the Belfast Museum. During the nineteenth century shipping was active and considerable rivalry existed between the many excursion ship operators. Some of these services lasted for cargo together with occasional excursions on Belfast Lough and Lough Foyle until 1939. In the North of Ireland, in spite of a natural focus in the form of Lough Neagh, canals were never a success as the area lacked the industry and density of population necessary to make them pay. All the inland canals are closed now and there is practically no commercial traffic on the lakes. Dr McNeill has written a most interesting and authoritative history. There are 20 half-tone illustrations, many of which are quite rare.

How Men are Rescued from the Sea by Patrick Howarth (Routledge & Kegan Paul Ltd, 68/74 Carter Lane, London EC4. Price 10s 6d).

This is the tenth book in the publisher's "How" series and covers all aspects of the rescue at sea. The author is well known by his previous works including *The Life-Boat Story,* which gives the full history of the Royal National Life-Boat Institution. The present volume covers a much wider range and includes chapters on the growth and present day activities of Trinity House, the Coastguard Service, the Life-Boat Service and Air-Sea Rescue. A final chapter covers the activities of the Post Office and wireless stations, the Board of Trade and the Ministry of Transport. The author was presented with a difficult task in producing a work running to only 131 pages, with eight illustrations, but it is easy to follow and is a good basis for readers to learn more of this side of life at sea.

Jahrbuch des Schiffahrtwesens, 1960, edited by Walter Teigeler. (C.D.C. Heydorns Buchdruckerei, Uetersen bei Hamburg. Available from Eckardt & Messtorff, Hamburg 11. Price DM38.)

This is a new yearbook consisting of articles (all in German) reviewing various aspects of the German shipping industry. It is to be followed in subsequent years by volumes devoted primarily to German shipbuilding and German ports respectively, returning to each subject every third year. It is attractively produced, and for those interested in German shipping and conversant with the German language it contains a great deal of good reading matter.

The New Safety Convention

SOME POINTS OF INTEREST

By R. J. Shepherd

The Spring Meeting of the Royal Institution of Naval Architects opened in London yesterday, when the first of a total of nine papers was read. Abstracts of this paper, which had the title "International Conference on Safety of Life at Sea, 1960", are reproduced here. The author, Mr R. J. Shepherd, is chief ship surveyor of the Ministry of Transport. Abstracts of the remaining papers read at the meeting will be reproduced in THE SHIPPING WORLD next week.

So EARLY a review of the decisions of the 1948 Conference was found necessary primarily because in the intervening years we have seen the successful development of the inflatable liferaft and the introduction of the nuclear ship. Further, anxiety was felt in some quarters overseas, following the tragic collision between the *Andrea Doria* and the *Stockholm*, that adequate steps had not been taken in earlier Conventions to secure maximum safety in such an event, and the apparently alarming frequency of the collisions between large ships in certain waters seemed to lend further support to this standpoint. The strengthening of many requirements in the new Convention is a reflection of this anxiety and of a generally held determination to take whatever steps are reasonably practicable to obviate the consequences of such events. It was generally felt that there was need to review the requirements for firefighting and the regulations governing the carriage of grain and undoubtedly these feelings have been stimulated by the frequent outbreaks of fire in ships and by the worldwide shipbuilding activity in the building of ships specially adapted for the carriage of bulk cargoes. In some countries it was also thought that the scope of the Convention should be extended to include fishing vessels, and even relatively small ones; and a number of delegations wishes to see regulations made to cover intact stability and subdivision of both cargo ships and fishing vessels.

In general, apart from certain provisions, the Convention, like the 1948 Convention, will apply to all passenger ships (i.e. ships which carry more than 12 passengers) engaged on international voyages and to cargo ships of 500 nrt and over similarly engaged. After considerable discussion it was decided not to extend the Convention to fishing boats.

The greatest interest will naturally centre on the new requirements which were agreed for the survey of hull, machinery and equipment of cargo ships. The International Convention respecting Load Lines, 1930, made provision only so far as the hulls of cargo ships are concerned, and there was no corresponding provision for surveys of machinery or equipment (other than lifesaving appliances, firefighting and radio equipment). As is well known, these matters are covered by the requirements of the recognised classification societies for ships which are submitted to them for survey, but no requirement exists for ships to be submitted to such survey. Accordingly it was felt in many quarters that this omission should be rectified, and the new Regulation 10 of Chapter I was framed to deal with it. It is permissible under the Convention to delegate powers of survey to organisations recognised by the Government concerned (Regulation 6 of Chapter I), so that it is unlikely that there will be any notable change in procedures for the survey of cargo ships so far as ships registered in the United Kingdom are concerned. The Convention does not itself lay down fixed intervals for surveys under these new requirements, and these are to be fixed by individual Governments.

Permissible Length of Compartment and Factor of Subdivision

The basic requirement is unchanged, namely, that "ships should be as efficiently subdivided as is possible having regard to the nature of the service for which they are intended."

The application of this principle has been studied in several countries during the past twelve years, and there was a general desire to step up requirements within the limits of practicability. For example, many passenger ships carrying large numbers of passengers are found to have calculated factors of subdivision a little greater than 0.50, and if built to comply with such a factor, they are still vulnerable to damage involving a bulkhead. The point has been met in many British ships by the cooperation of owners and builders and a full two-compartment standard had actually been achieved. We therefore felt that the possibility of including a regulation to this effect should be explored at the Conference. Two courses appeared open: either to regulate the subdivision according to the calculated factor, or to some other parameter; and for this purpose the parameter N/L appeared suitable, N being the number of passengers, and L the length of the ship. Ships built in the United Kingdom in the meantime had met a full two-compartment standard with a calculated factor as high as 0.56, or even higher, so that it appeared practicable to apply a 0.50 factor when the calculated factor fell within the range of 0.56 to 0.50.

It appeared reasonable to use the parameter N/L as both passenger numbers and length were already in use; the new parameter would offer a comparison of passenger densities between ships of different lengths. Particulars of passenger ships built since the war in Britain and elsewhere to Ministry approval were examined, and it was found that a value of unity would be acceptable: it would secure the higher standard of subdivision currently found in British short international voyage ships carrying numbers of persons in excess of the lifeboat capacity, and the interdependence of subdivision and lifesaving appliances would therefore have disappeared. This could be justified on the ground that the two cannot properly be equated and both should be the best of their kind.

Piping Systems

The influence of the introduction of plastics into shipbuilding is reflected in the requirement that heat sensitive materials shall not be used where deterioration in the event of fire would impair the watertight integrity of the bulkheads. A similar requirement has been applied to ships' side discharges.

Openings in the Shell Plating

It is obvious that some addition to safety would accrue if openings in the sides could be eliminated or very appreciably reduced in number, and some unfortunate experiences overseas in recent years quite properly caused serious thought to be given to this problem. Furthermore, improved methods of ventilation and lighting and the frequent application of temperature and humidity

control are a challenge to the need for side scuttles: indeed in some recent large British ships side scuttles have been omitted from the lowest tier of passenger and crew accommodation. In ships employed exclusively in the North Atlantic trade side scuttles are often obscured by deadlights for a large period of each year, and under such conditions, there would appear to arise a very strong justification for omission of such scuttles.

There must, of course, be openings in the ships' sides for loading and discharging baggage and stores, and often cargo and fuel, and the position of these openings and the gangway doors for passengers and crew have to be related to height of the quay or shore gangway. In this country we have been very fortunate in avoiding trouble due to the entry of water through such side openings, and accordingly were unable to support proposals which would have had serious effects on newly developed methods of handling baggage and stores. Our view was accepted by the Conference, and no change has been made in the requirements. If ever passengers should lose interest in the passing scene it may be possible to dispense with some, if not all, of the glasswork which now appears as a feature of passenger ships; at present it would seem that most passengers and crew prefer to have opening ports.

Life-Saving Appliances

The Conference has accepted as conclusive the excellent record of performance achieved by the inflatable liferaft, particularly in small ships, and accordingly the prohibition on the use of apparatus which depended for its effectiveness on means for inflation has now been abandoned. Specifications of requirements for liferafts, both inflatable and rigid, have now been written into the Convention and offer a challenge to designers to take advantage of the relative merits of these two types. The Conference has attached considerable importance to the property of ready portability, and for this reason has imposed a weight limitation with an exception for rigid rafts carried in cargo ships if they are capable of being launched from both sides of the ship, or if there are provided means for putting them into the water mechanically. The rigid raft must be reversible, a requirement that the inflatable raft has not yet been able to meet: whether this requirement will be found to be onerous on stability remains to be seen.

Competition between boats and rafts will now be joined in earnest and very interesting developments may be expected. Some designer will, no doubt, in due course produce a piece of mechanically propelled lifesaving construction which will satisfy the desires of those who wish to be able to navigate, be capable of boarding from on board ship, and of being safely lowered into the water and got away undamaged from the ship's side. It will further provide adequate protection against the elements, and in this connection it is interesting to note that an Administration may now approve the fitting of a rigid shelter to a lifeboat if the shelter is designed so as to allow ready embarkation and escape. Such a shelter would appear to offer considerable attraction in the case of tanker lifeboats, but so far as we are able to judge at present, it would seem that a water-spray must also be installed if it is desired to secure sufficient protection when passing through oil burning on the surface of the sea. The Conference's Recommendation No 20 is relevant in this connection. Spray hoods are permissible in motor boats.

The size of lifeboats has been further limited by the prescription of a maximum capacity of 150 persons. This has been done not so much from the point of view of construction of the boat or of the davits, but rather from consideration of the problem of getting a large number of people quickly away in a safe and orderly manner from a sinking ship. This same consideration has led to a prohibition of nesting, but lest this should prevent the development of any promising system which might employ nesting, a Recommendation (No 24) has been made which should prevent the stifling of any really promising proposals. A target of 30 minutes is set in Regulation 29(n) of Chapter III for abandoning ship.

There are to be more motor boats in passenger ships in the future and they must employ compression ignition engines in all ships. There is a specification for mechanical hand propulsion, but this may not be fitted in lifeboats permitted to carry more than 100 persons, nor as an alternative to a motor.

The effect of the acceptance of inflatable liferafts is to be seen in the rules for both passenger and cargo ships. "Buoyant apparatus" of the old specification is replaced by liferafts and will possibly eventually disappear on all ships engaged in international trade. It is considered that only the passage of time will enable what may be called a final appraisal to be made of the relative merits of boats and inflatable liferafts, but it has been agreed that a limited amount of substitution of boats by rafts may now be accepted; associated in the case of passenger ships with approved launching devices, e.g single-arm davits. The inflatable liferaft does offer a practicable means of affording first class protection and the highest practicable degree of safety for all on board ships of the cross-channel type, something that has not formerly been practicable; and it is agreed that in this class of ship, where the provision of the tabular number of sets of davits would prevent the achievement of this desirable result, the number of davits may be reduced in order to equip the ship with enough inflatable liferafts. Some proportion of liferafts must be carried on all "convention ships" other than tankers over 1,600 grt.

For the present, buoyant apparatus will not entirely disappear, because passenger ships must still carry buoyant apparatus capable of supporting 3 per cent of the complement on long international voyages and 5 per cent on short international voyages.

The value of gravity operated davits has been recognised by requiring them to be used for all boats weighing more than 2¼ tons in turning out condition and for all boats in tankers over 1,600 grt and whaling factory ships etc.

The special problem arising in tankers also received very serious consideration: this has been made necessary by the development of large tankers navigated from aft and having no structure amidships on which lifeboats could be carried. The ideal position for boats is one which affords adequate protection from the sea and in particular sufficient height above the water, but no higher than this so as to minimise the risk of damage during lowering; a position removed from the menace of the propellers or from moving cargo, and from overhanging or projecting parts of the ship. All these desirable features are difficult to achieve, particularly with four boats, in a ship in which all the accommodation and the navigating bridge are situated right aft. With such a ship there is, of course, not only the question of cubic capacity of the cargo spaces but also their distribution and its influence upon structural strains; considerations which are additional to the economic advantages which accrue.

The acceptance of means of inflation has also been seen in the specification for lifejackets which may now employ inflation provided they are used only for crews of cargo ships other than tankers.

Carriage of Grain

The 1948 Rules, while satisfactory in principle for conventional ships in many trades, did not take account of

the satisfactory application of other practices and conditions in other trades: or of mixed cargoes which include grain. Moreover, they were too restrictive when considering designs of ships other than the conventional. Postwar shortages of material and labour also added to the difficulties attending strict administration of these rules, and recourse had to be made to what is well known as the "Equivalents" Rule found in Regulation 5 of Part A of Chapter I. Consequently, a considerable expansion of the 1948 Rules has been written into the new Convention with several interesting results.

Grain Stowage Rates

The expressions "light" and "heavy" grain have disappeared: these were formerly used in order to exercise some control over ships' stability and the stowage of partly filled spaces, two matters of primary importance to the safety of the ship. The old rules imposed a 23 per cent limit on the amount of heavy grain permitted in upper tweendecks. Such a rough and ready rule covering such matters is very convenient to Administrations and shippers in many exporting countries but, of course, it did restrict the loading of well-designed ships to that of ships having the average or even a minimum of stability. The rules had also got a little bit behind events because the stowage rate of modern ships has crept up and up, so that whereas 50 cu ft to the ton was not an uncommon figure 30 to 40 years ago, a figure of 70 cu ft per ton is now quite common in conventional ships. This means, of course, that whereas empty space could formerly be certain to occur when carrying only wheat or maize, it can now be found almost with the lightest of oats. Moreover, such a ship, or certainly one carrying very light barley, can be filled up and have no spare draught for the carriage of water ballast, whereas formerly such a cargo could be carried plus several hundred tons of water ballast to maintain stability. Ships having a minimum stability are not required to comply with a restriction on the quantity of grain carried in the upper tweendecks. This minimum stability is expressed in the form of 12in of GM for ships having one or two decks, and an additional 2in for other ships to take account of additional voids.

A further problem which the rules now attempt to solve relates to the time and expense necessary to erect and maintain portable grain fittings in way of hatchways: these may now be dispensed with provided a minimum feeder capacity of 5 per cent is available and occupied by cargo, and the above minimum stability is maintained throughout the voyage.

The problem peculiar to the carriage of grain arises from the fact that it will settle during the voyage, leaving voids which afford opportunities for movement in bad weather. Grain cargoes have varying stowage rates ranging from perhaps 45 cu ft to the ton or even a little heavier than this to as high as 70, and the amount of empty space will depend upon the density (which is not always known with certainty until loading is nearly completed). Movement of the grain in partly filled spaces can be controlled by bagging over the surface with grain in bags or other suitable cargo, or, as is required for upper tweendeck compartments, by limiting the size of partly filled spaces. Further precautions to control the size of partly filled spaces can be seen in the rules which require the provision of bulkheads in upper tweendecks to be spaced at intervals of not more than 100ft.

If the grain surface in the known partly filled space is secured, there remains the problem of movement in voids due to settlement, and no relaxations are permitted from the requirement to fit longitudinal divisions unless the stability is considered adequate to deal with movement in the voids.

It is to be noted that the stability specified is not in substitution for any other requirement of stability which may be imposed by other regulations, or may be called for in the opinion of the master in order to meet other requirements and the ordinary perils of the sea.

In order that restrictive rules should not be applied indiscriminately, it has not been found possible to provide for the problem of bad loading other than by giving place of honour in the rules to the necessity for trimming full all compartments which are to be treated as full compartments.

In order to deal with designs of ships which have subdivision other than that provided by decks and athwartship bulkheads, a Regulation (No 12 of Chapter VI) has been written setting out agreed principles: first among these is the provision of sufficient stability to limit the angle of heel resulting from a movement of grain in voids to an acceptable figure of 5 deg. A settlement of 2 per cent is assumed to take place from the original surface under all boundaries which have an inclination of less than 30 deg to the horizontal and the grain surface is assumed to take up an angle of 12 deg with the original surface. It is thought that such an angle represents the possible result of an extremely violent roll or lurch. Surfaces in partly filled spaces are assumed to take up an angle of only 8 deg if they are satisfactorily overstowed.

Other matters of interest are the regulation of common loading of holds and tweendecks, the use of bagged grain or other suitable cargo in the wings of tweendeck spaces as a substitution for middle line divisions, the limitation on the number of partly filled compartments in ships not complying with the minimum requirements for stability, and the subdivision of double bottom water ballast tanks comparable with the requirements for timber deck cargoes.

The influence of the employment of tankers and ore and other bulk carriers is well reflected in the regulations.

Nuclear Ships

The existence of nuclear propelled warships and one nuclear propelled merchant ship now in service and a second one fitting out was sufficient justification for an attempt to secure international agreement on the basic rules for construction and operation. It is apparent that a new concept had to be considered, namely, the safety of persons in the environment of a nuclear ship, and not merely either on board that ship or in a colliding ship. This new concept requires that measures shall be taken to secure the safety of members of the general public and, further, that no hazards shall arise as the result of pollution of food or water.

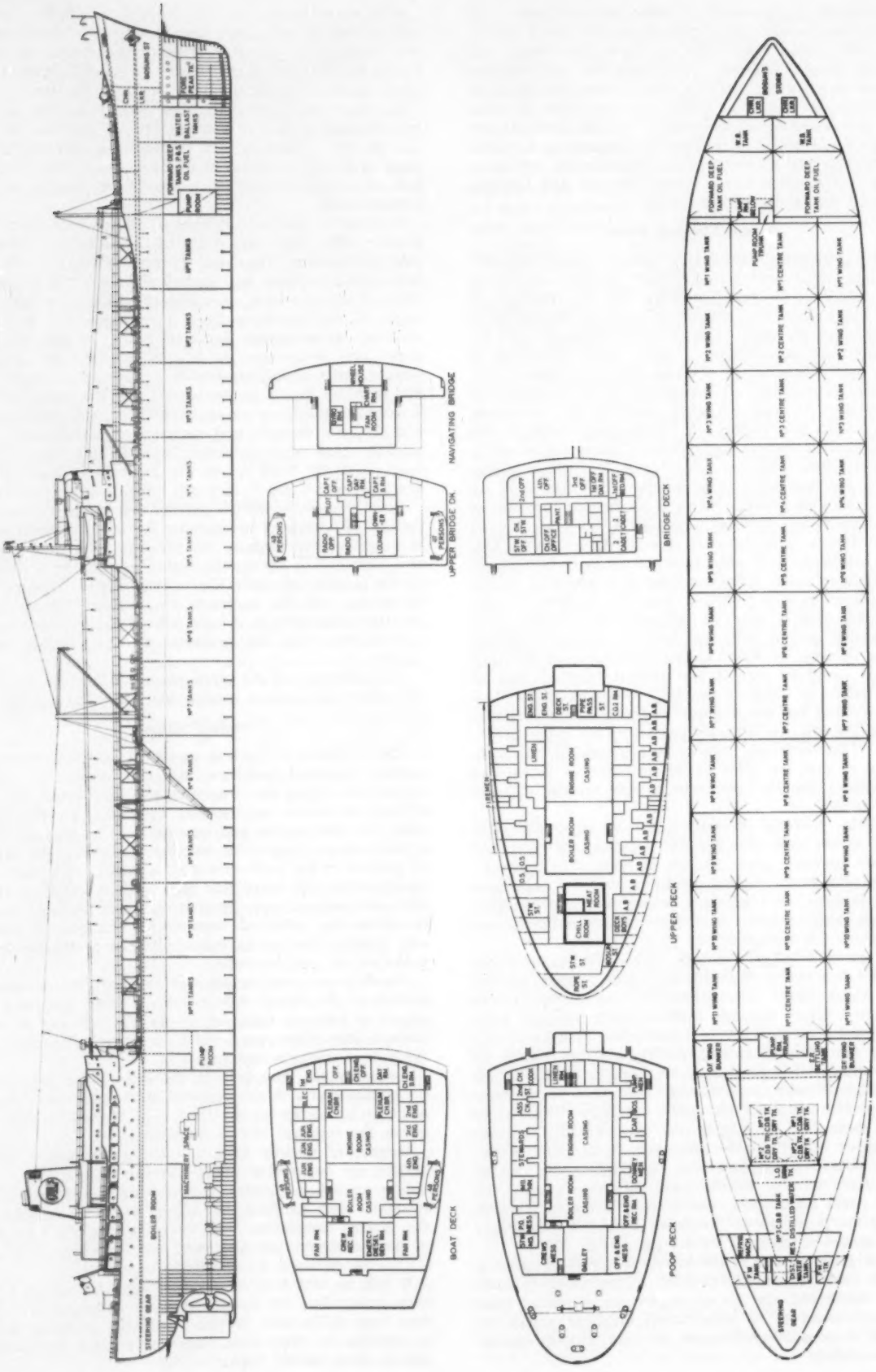
Another new concept adopted concerns the document known as the Safety Assessment, it being necessary to secure in advance approval by the Government of any country into whose ports entry is desired. Pre-entry inspection is also provided for.

Emphasis has been laid on the instructions issued for the guidance of a ship's personnel, a comprehensive document to be known as the Operating Manual, which requires the approval of the Administration.

Surveys of nuclear ships and the consequential certification are required at yearly intervals.

The regulations further require that the design, construction, and standards of inspection and assembly of the reactor installation shall be subject to the approval of the Administration, and must take account of the influence of radiation on ability to survey.

It will be seen that only a few broad principles have been written into the Convention as regulations, and this was done deliberately in order to leave as much room as possible for free development of nuclear ships—free, that is, from unduly restrictive rules.



Profile and general arrangement of the 40,100-dwt turbine tanker "Gulf Briton," built by the Furness Shipbuilding Co Ltd, Haverton Hill-on-Tees, for Britoma Tankers Ltd

Oil Tanker "Gulf Briton"

FIRST OF FOUR BUILT BY FURNESS FOR GULF OIL

THE first of a series of four 40,100-dwt turbine tankers ordered from the Furness Shipbuilding Co Ltd for Britama Tankers Ltd, a British-flag affiliate of Gulf Oil, has been delivered. She is the largest vessel to be built on the River Tees, and the first of a basic standard type of tanker of this size offered by Furness. The second, the *Gulf Scot,* was launched in November and will be delivered in July, while the third, the *Gulf Dane,* is due for launching at the end of May, and the fourth, to be named *Gulf Finn,* will follow a year later. The main propelling machinery of the *Gulf Briton* consists of a set of Richardsons Westgarth-Brown Boveri steam turbines developing 19,000 shp at 108 rpm maximum continuous rating; and on extended trials the vessel attained her required service speed of 17 knots.

The *Gulf Briton* is of the normal poop, bridge and forecastle type with machinery aft, with a well-raked stem and cruiser stern. She has been built to the highest class of Lloyd's Register and the American Bureau of Shipping. Her principal dimensions are:

Length overall	714ft 8in
Length b.p.	680ft
Breadth moulded	95ft 3in
Depth moulded	48ft 6in
Draught (summer loadline) ...	36ft 4⅞in
Deadweight	40,100 tons

The vessel is built on the longitudinal system of framing in way of cargo tanks, aft pump room, engine and boiler rooms, the ends being transversely framed. The shell and decks are almost completely welded and the longitudinal and transverse bulkheads completely welded.

The tank space is divided into eleven treble tanks making 33 oil compartments having a total capacity of 39,057 tons of oil cargo at 50 cu ft per ton after allowing 2 per cent for expansion or 347,853 barrels at 98 per cent capacity. Aluminium-brass tubing heating coils are fitted in all cargo tanks, the centre tanks having a heating capacity of 1 sq ft per 200 cu ft of tank capacity and the wing tanks 1 sq ft per 150 cu ft. Oil fuel is carried in the engineroom wing tanks, settling tanks and forward deep tanks, the total capacity being 4,441 tons, 100 per cent full at 37.2 cu ft per ton.

The main cargo pump room is arranged at the forward end of the engine room and contains three Drysdale centrifugal turbo-driven cargo pumps, each capable of delivering 1,300 tons of salt water per hour against a pressure of 125 lb/sq in. The turbines are located in the engine room and drive the pumps through flexible couplings to extended pump shafts carried in gastight stuffing boxes through the gastight bulkhead. Three vertical duplex steam stripping pumps (16 × 12 × 15in) each having a capacity of 160 tons of salt water per hour are fitted.

The cargo pumping system consists of three independent systems serving three groups of tanks, one cargo and one stripping pump being connected to each group suction main. Each cargo pump has an independent deck discharge, these being cross-connected in the pump room. The stripping pumps have a combined deck discharge. The mains are grouped together at a midship manifold used for either discharge or loading. A stripping system is fitted consisting of two 8in lines serving two groups of tanks with 6in suctions. Expansion throughout the cargo lines is by means of "Dresser" couplings.

The main pump room bilges are pumped by means of a 6 × 6 × 6in vertical duplex pump. In the forward pump room are two pumps identical to the stripping pumps, one being for bilge and ballast duties and the other for oil fuel transfer. There is also an oil fuel transfer line connecting the aft bunker and the forward deep tanks with a loading connection amidships, aft and forward.

The vessel is rigged with one steel foremast, two derrick posts and a steel signal and radar mast. Deck equipment includes four steam cargo winches and a steam windlass of the latest design. The steering gear is electro-hydraulic of the four-ram type with duplicated motors and pumps, controlled from the wheelhouse by gyro pilot or telemotor system, with direct control from the boat deck and a control wheel in the steering gear compartment.

Refrigerated chambers of 4,766 cu ft are fitted in the poop tweendecks and are operated by two electrically driven Freon type refrigerating machines. A permanent swimming pool is fitted at the forward end of the casing top.

Accommodation is arranged amidships for officers and at the after end for engineers and deck and engine crews. The accommodation generally is of a very high standard, the bulkheads being of Marinite panelled with plywood and painted either white or ivory. Some of the rooms having a dado of weathered sycamore or Avodire with furniture of teak, oak, Queensland maple, beech or light mahogany. In the midship bridgehouse are the owner's, captain's and chief officer's suites, rooms for three officers, four cadets, pilot, radio operator, chief steward, hospital and an office for the Chief Officer. All the accommodation is fitted with mechanical ventilation, heating and air conditioning and all is in accordance with the latest Ministry of Transport requirements.

Propelling Machinery

The propelling machinery in the *Gulf Brtion* consists of a set of Richardsons Westgarth-Brown Boveri latest type of turbines driving a single propeller through double-reduction gearing. The ahead propelling machinery comprises two turbines,

Officers' lounge

Captain's bedroom

an HP turbine of impulse reaction design, and an LP turbine of reaction design, each driving a separate pinion which gears with a separate primary wheel. The primary wheel gears with a common wheel which is coupled to the propeller shaft and which revolves clockwise when looking forward. For astern working the HP and LP turbine are incorporated in the HP and LP ahead turbine casings respectively.

The machinery is capable of developing a normal ahead power of 17,500 shp with propeller revolutions of 105 per minute. The revolutions of the HP turbine are about 3,800/min and the LP turbine about 2,800/min. The maximum continuous ahead power is 19,000 shp at 108 rpm.

The astern power is about 65 per cent of the normal ahead power and the machinery is capable of operating at a minimum of 70 per cent of the normal ahead rpm for 30 minutes. Maximum propeller revolutions astern are about 100. The machinery is capable of developing the above power with an initial steam pressure of 585 lb/sq in, and a total temperature of 840 deg F with a vacuum in the condenser of 28½in Hg, at normal ahead power.

The HP turbine cylinder casings are of cast steel, and the LP turbine cylinder casings of fabricated construction with cast steel shells built into mild steel fabricated casings. All cylinder casings are ribbed and stiffened as necessary in order to maintain their shape under temperature conditions.

Independent emergency operation of HP or LP turbines is accomplished by (a) emergency exhaust connection from high pressure turbine to main condenser, and (b) emergency steam supply direct to low pressure turbine.

Connections have been provided for the supply of bled steam from the turbines for boiler feedwater heating, boiler air heating, evaporating plants and low-pressure steam generator.

The main reduction gearing is of the helical double-reduction articulated type arranged in a rigid steel casing. The primary gears have teeth of the involute type 6/10in pitch, and the secondary gears teeth of the involute type 7/10in pitch. The primary gearwheels drive the secondary pinion shafts through quill shafts.

The main gearwheel is of the built-up type consisting of a forged steel rim bolted to mild steel side plates and a cast steel centrepiece which are themselves bolted to flanges on the main wheel shaft. The first reduction gearwheels have cast iron centres with forged steel shafts and rims. The secondary pinions are made hollow to accommodate the quill shafts. Primary and secondary pinions are of forged nickel steel.

Boilers

The boiler installation consists of two Foster Wheeler 'D' type boilers located aft on the boiler flat and arranged for burning oil fuel only under forced draught and fitted with superheaters, internal desuperheaters, all-welded economisers and steam type air heaters. The boilers operate under the General Regulators automatic combustion control system, which regulates the fuel and air supply in accordance with the demand for steam. Manual control is also provided.

The boilers have been designed for a maximum pressure of 680 lb/sq in, and for the following conditions when burning oil having a calorific value of 18,500 BTU/lb:—

	Normal	*Maximum*
Superheater outlet pressure (lb/sq in)	600	600
Superheater outlet temperature (deg F)	850	—
Total evaporation, each boiler (lb/hr)	72,500	95,000
Efficiency	87.75%	—
Heating surface of boiler and waterwalls, per boiler (sq ft)		7,780
Heating surface of economiser (sq ft)		8,400
Total generating surface (sq ft)		16,180
Superheater surface (sq ft)		1,620
Feed temperature (deg F)		240

Safety valve settings

Superheater safety valve	620 lb/sq in
Drum safety valve	680 lb/sq in
Economiser relief valve	720 lb/sq in

The main condenser has a cooling surface of 18,000 sq ft and is of Weir regenerative design supplied with circulating water by two Drysdale upright circulating pumps each with an

Pumps for Principal Services

System	*No of pumps*	*Bhp*	*Type and drive*	*Size*	*Discharge pressure*
Main condenser circulating	2	90/118	Centrifugal/motor	11,000 gal/min	25ft
Atmos. condenser circulating	1	55	,,	3,500 gal/min	35ft
Aux. condenser circulating	2	11/19	,,	1,475 gal/min	35ft
Main condenser extraction	2	34	,,	144,000 lb/hr	63 lb/sq in
Aux. condenser extraction	2	2.5	,,	19,000 lb/hr	180/200ft
Condensate and drains transfer	2	12	,,	65,000 lb/hr	80 lb/sq in
Evaporator extraction	2	4	,,	650 gal/hr	85ft
Evaporator brine	2	4	,,	1,950 gal/hr	20 lb/sq in
Main boiler feed	3	—	Centrifugal/turbo	190,000 lb/hr	750 lb/sq in
Boiler fuel oil service	2	9/18	Screw type/motor	6,500/15,000 lb/hr	500 lb/sq in
Lubricating oil service	2	40	,,	26,700 gal/hr	55 lb/sq in
Lubricating oil transfer pumps	2	1	Gear type/motor	850 gal/hr	25 lb/sq in
Fire and general service	2	27.5/75	Centrifugal/motor	100 tons/hr	105/270ft
Salt water service	2	28	,,	685 gal/min	35 lb/sq in
Emergency bilge	1	10	,,	25 tons/hr	35 lb/sq in
Fuel oil transfer	1	—	Duplex steam reciprocating	80/100 tons/hr	125 lb/sq in
Fuel oil transfer and service	1	—	,,	15 tons/hr	300 lb/sq in
Boiler test and emergency feed	1	—	Simplex steam reciprocating	8,950 lb/hr	750/1,050 lb/sq in
L.P. feed	2	—	,,	50,000 lb/hr	165 lb/sq in

output of 11,000 gals/min. Both pumps will be in operation in tropical waters and are designed to maintain 28½in Hg with sea water at 75 deg F.

The oil burning equipment, supplied by Associated British Combustion, is designed for an operating pressure of 550 lb/sq in, with mechanical atomising burners.

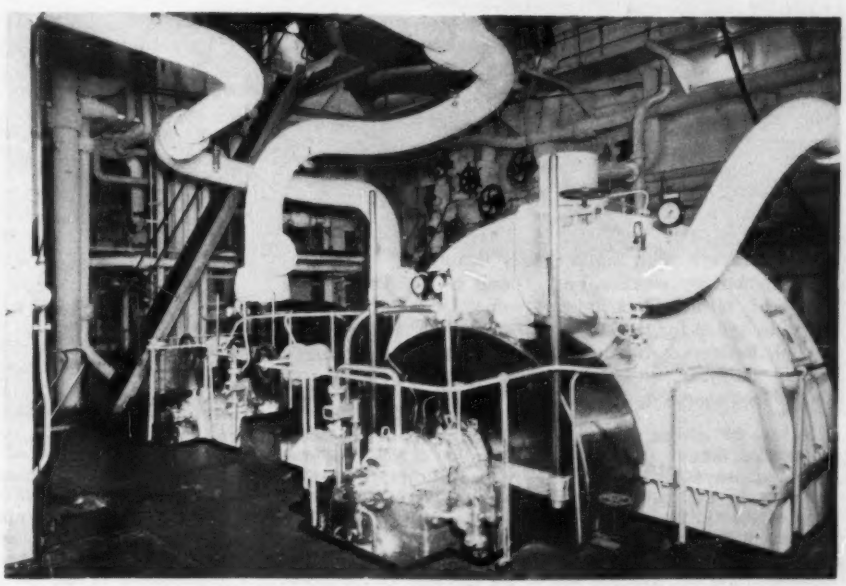
A four-bladed Stone Novoston propeller is provided of 22ft 6in diameter and weighing 31¼ tons, and is carried on a tailshaft 28in in diameter.

Electricity for power and lighting is generated at 450 volts, 3 phase, 60 cycles by two A.E.I. turbo-driven alternators, each 650 kW at 0.8 P.F. One Paxman diesel-driven alternator of 150 kW provides power for cold ship starting and port use and this machine is also arranged to start automatically on failure of main supply and will provide emergency lighting throughout the vessel. Most engineroom auxiliaries are electrically driven. Steering gear, air conditioning, ventilating fans and galley equipment are supplied direct from the 450 volts 3 phase supply.

Lighting throughout the vessel is at 115 volts, single phase AC from transformers incorporated in the main emergency and midship switchboards. Navigational aids fitted include radio, direction finder, radar, echo sounder and gyro compass with automatic steering. All DC power required for these units and for battery charging is obtained by means of static rectifiers. A comprehensive telephone installation is included comprising loudspeaking telephones at bridge, poop and forecastle and an intercommunicating system of sound-powered telephones.

SHELL TANKERS LTD report well over 4,000 hours of trouble-free running (equivalent to about six months' continuous operation) by the 425-kW A.E.I. brushless alternator which was installed in the tanker *Varicella* during an overhaul in March last year (*SW*, 11.5.60). For about one-tenth of the running time the brushless alternator has been operating in parallel with a conventional machine of the same rating. Maintenance of the brushless alternator has been negligible. Automatic voltage control has been used at all times.

SEAFARER INFLATABLE LIFERAFTS made by Dunlop have been specified for two Russian tankers being built in Sweden. Each of the tankers will carry one 20-man and one 10-man liferaft. The stowages for these will be fitted with Dunlop hydrostatic release units, ensuring the automatic release of the stowed liferaft in the event of a sudden sinking. Twelve 20-man Dunlop inflatable liferafts have also been ordered for Russian vessels building in German yards.



TOP: View of the wheelhouse, showing latest type of Chadburn engineroom telegraph

CENTRE: Main deck looking forward

RIGHT: The Richardson Westgarth-Brown Boveri steam turbines in the "Gulf Briton"

Oil Topics

ARABIAN OIL IN JAPAN

DISCOVERY of a rich oilfield is nowadays not the only measure of a company's success. The Japanese Arabian Oil Company faces the same problem. According to the Petroleum Press Bureau, in the Persian Gulf concession offshore from the Neutral Zone, obtained from the Rulers of Saudi Arabia and Kuwait in 1958, oil was found in January 1960 with the first well. Ten have now been drilled in the Khafji field and all are producers with yields of 6,000 b/d or more, offering at present a potentional annual output of three million tons a year. Arabian Oil had intended to ship 2,400,000 barrels during the first quarter of this year, but now the first delivery is expected in Japan only in April, owing to the difficulties which the company is having in raising funds to complete its facilities. It was relying largely on American banks to finance some $40 mn of equipment from the U.S. which could not be got in Japan. But loans against oil that has to be sold by a newcomer in open competition with established marketers in such a price-conscious country as Japan are proving hard to get. True, many of the shareholders in Arabian Oil are big consumers, mostly of fuel oil; they comprise about 60 Japanese concerns including iron and steel, shipping and shipbuilding, and other companies. But few of them have any stake in the oil industry as such, and as big consumers their interest naturally lies in buying as advantageously as possible. Market conditions have changed radically since Arabian Oil was formed and in the highly competitive conditions now reigning in the Japanese market users will probably be unwilling to buy oil from their own company except at a competitive price.

Sun Oil Transportation

ACCORDING to the annual report for 1960 of the Sun Oil Company, technological improvements led to greater efficiency in Sun Oil's tanker and pipe line operations. The second of a pair of 50,000-dwt tankers, the *Texas Sun*, joined the fleet shortly before the end of the year, replacing three T2 tankers of 16,700-dwt capacity each. Because of the *Texas Sun's* greater size and speed, the company gained more than 1,000,000 barrels of annual carrying capacity through the exchange. More importantly, the *Texas Sun* operates with a crew of 46 officers and men and the three ships she replaces required a total complement of 114. This reduction in manpower requirements was anticipated and, as a result of careful planning, no lay-offs were involved. The *Texas Sun*, a sister of the *Pennsylvania Sun* delivered a year earlier, has a capacity of 367,000 barrels and a normal cruising speed of 17 knots. Sun tankers lifted 35,700,000 barrels of crude for Marcus Hook in 1960, or 2,500,000 more than in 1959. The bulk of it came from U.S. Gulf ports and Venezuela. The fleet delivered 1,500,000 barrels of foreign crude to Sun Station, near Beaumont, Texas, for transhipment by pipeline under bond to the Sun Oil refinery at Sarnia, Ontario, and some 550,000 barrels of domestic crude for transhipment by pipeline to the Toledo (Ohio) Refinery. All the tankers were fully employed during the year, either in service for the company or under spot charter to others.

A NEW BP interest in the search for oil in Alaska has been announced. Sinclair Oil and Gas Corporation and BP Exploration Company (Alaska) Inc. have joined Richfield Oil Corporation in exploration operations in the Katalla-Yakataga area of the Gulf of Alaska. An option to acquire a one-half interest in the operation was exercised by Sinclair, and one-half of Sinclair's interest was assigned to BP Exploration Company (Alaska) Inc. Richfield will be the operator for the group.

RECENT SHIP SALES

NEWBUILDING motorship (4,700/6,050 dwt, open/closed, at Sarpsborg Mek. Verks. A/S) originally for Norwegian account, sold to Canadian Pacific Steamships for about £530,000 and to be named *Beaverfir*.

Liberty-type steamer *Eleni D.* (ex-*John W. Troy*, 10,920 dwt, 7,176 grt, 4,380 nrt, built 1944 by Oregon Shipbuilding Corp.) sold by Alcyon Shipping Co Ltd, Andros, to Greek buyers for £110,000 with survey passed.

Cargo steamer *Centaurus* (ex-*London Dealer*, ex-*Pentridge Hill*, 11,137 dwt, 7,431 grt, 5,589 nrt, built 1941 by Bartram & Sons Ltd) sold by Sociedad Transoceanica Canopus S.A., Panama, to flag of convenience operators for £75,000 with prompt delivery Harwich, where she has been idle since March 1958.

Cargo steamer *Cassiopeia* (ex-*Wembley Hill*, ex-*Haligonian Baron*, ex-*Fort Pic*, 10,450 dwt, 7,150 grt, 4,262 nrt, built Sorel, P.Q., 1943 by Marine Industries Ltd) sold by Transcontinental Oil Transportation Corp., Panama, to Hong Kong trading buyers for £83,500 with prompt delivery Hong Kong where she has been idle since last August.

Two Liberty-type steamers, *Themoni* (ex-*Josiah Cohen*, 10,500 dwt, 7,198 grt, 4,364 nrt, built Savannah 1944 by Southeastern Shipbuilding Corp, and owned by Kassos Steam Navigation Co Ltd, Syra) and *Akti* (ex-*W. B. Rodgers*, about 10,500 dwt, 7,176 grt, 4,380 nrt, built 1944 by Permanente Metals Shipyard No 1, owned by Livanos Bros. Maritime Co Ltd, Piraeus) both sold to Greek buyers with survey passed, at £195,000 for the two. The *Akti* has been idle at Syra since July 9, and the *Themoni* since 22 October 1957.

Cargo steamer *Umran* (ex-*Muzaffer*, ex-*Bronte*, ex-*Benedict*, 5,067 grt, 3,067 nrt, built 1930 by Cammell Laird & Co Ltd) sold by Riza ve Aslan Sadikoglu Ortaklari Komandit Sirketi, Istanbul, to Spanish shipbreakers.

Motor vessel *Totila* (ex-*Boleslaw Prus*, ex-*Nordpol*, ex-*Manuel*, ex-*Nordpol*, 4,528 grt, 2,689 nrt, built 1926 by Burmeister & Wain) sold by Totila Shipping Corporation, Panama, to Japanese shipbreakers for £70,500 with prompt delivery Kobe.

Tank steamer *Wellington* (ex-*Stanvac Wellington*, 10,013 grt, 6,021 nrt, built Chester, Pa., 1941 by the Sun Shipbuilding Co) sold by Ocean Carriers Inc., Panama, to J. de Smedt, Antwerp, for $184,000 for demolition. She is lying at Antwerp with grounding damage.

Cargo steamer *Gudveig* (ex-*Nordnes*, ex-*Aurora*, 4,124 grt, 2,381 nrt, built 1932 by A/B Gotaverken) sold by D/S A/S Gjerpen (H. Gjerpen) Oslo, to N.V. Holland, Hendrik-Ido-Ambacht, for £39,000 with fire damage "as lies" Immingham. She will be broken up.

Cargo steamer *Kurer* (ex-*Idraet*, ex-*Fagerbro*, 999 grt, 537 nrt, built Larvik 1923 by Holens Verksted) sold by A/S Bokn (Erik Bakkervig), Haugesund, to Norwegian shipbreakers.

Motor tanker *Gard* (8,259 grt, 4,959 nrt, built 1938 by Eriksbergs M.V.) sold by Skibs A/S Corona (H. M. Wrangell & Co A/S) Haugesund, to Norwegian shipbreakers for £57,000.

MAJOR-GENERAL A. H. GATEHOUSE has been named honorary representative for Great Britain of the International Travel Market Research Council, a non-profit body composed of a number of international transport and travel organisations set up to sponsor and supervise the 18-nations European Travel Market Survey now under way. The affairs of the I.T.M.R.C. are administered by a management committee consisting of Mr Norman L. Johnson, Chief, Forecast and Analysis Division, Port of New York Authority, representing the Travel Research Association of America; Monsieur Pierre D. Cot, executive director, Aeroport de Paris, representing the Western European Airports Authorities; Monsieur Albert Barbaut, chief engineer and chief of operations, French Railways, representing the International Union of Railways; and Mr Victor Gore, secretary general of the Air Research Bureau, Brussels, the organisation of the 14 major scheduled airlines of Europe.

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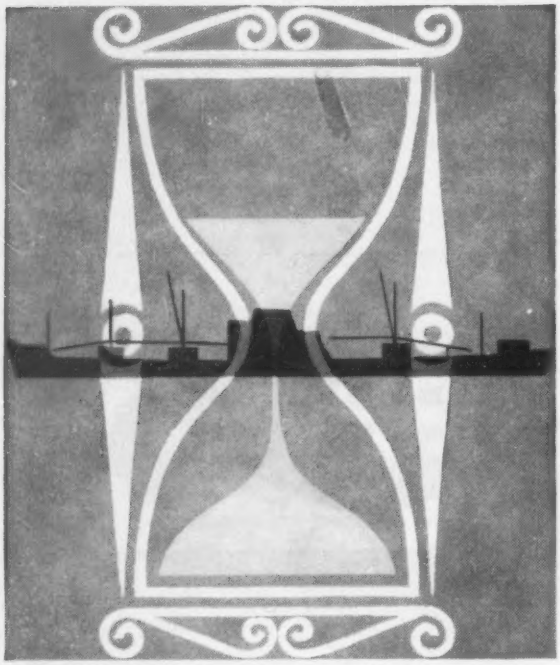

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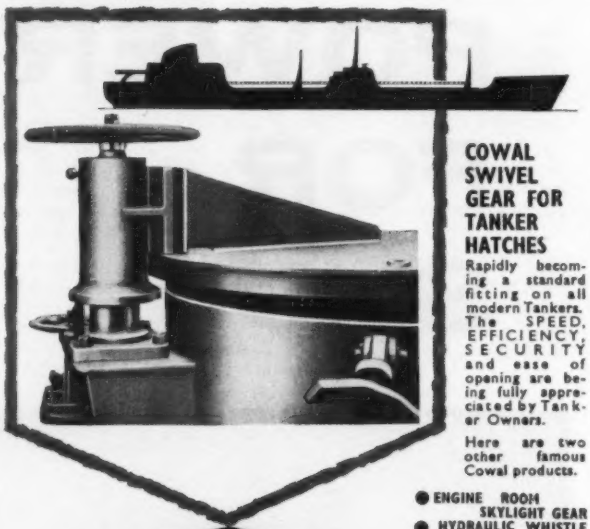

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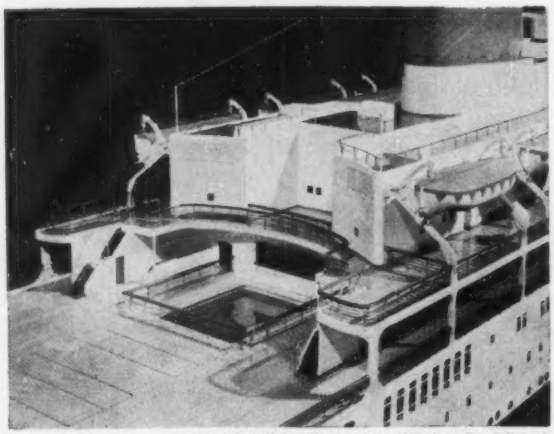

Model of Union Castle Liner "Windsor Castle," built to the order of Cammell Laird. Scale : ½" = 1'

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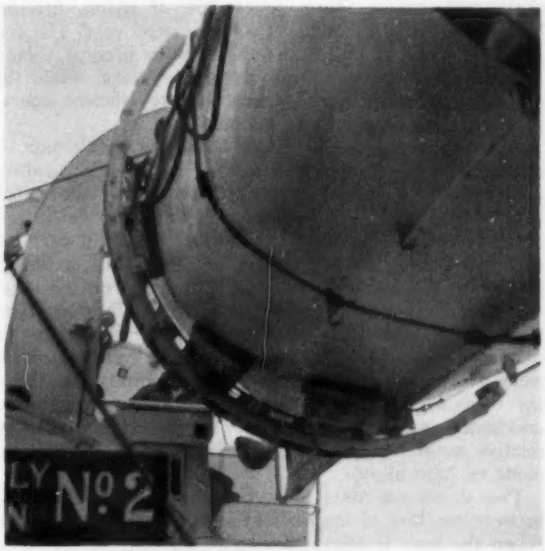
Pansen Lifeboat Skate

NEW DEVELOPMENT TO BE MANUFACTURED IN U.K.

A NOVEL type of lifeboat skate, the invention of two Italian engineers, is to be manufactured in the United Kingdom. Known as the Pansen skate, it takes its name from the initial syllables of the names of its joint inventors, Drs G. Seno and B. Panisson. The marketing of the skate is being handled throughout the world by G. T. Symons & Co (Agencies) Ltd, a newly-formed subsidiary of the shipbroking firm G. T. Symons & Co Ltd, 6 Lloyd's Avenue, London EC3. The skate has received the approval of the Ministry of Transport, and arrangements are now being made for its manufacture in the United Kingdom.

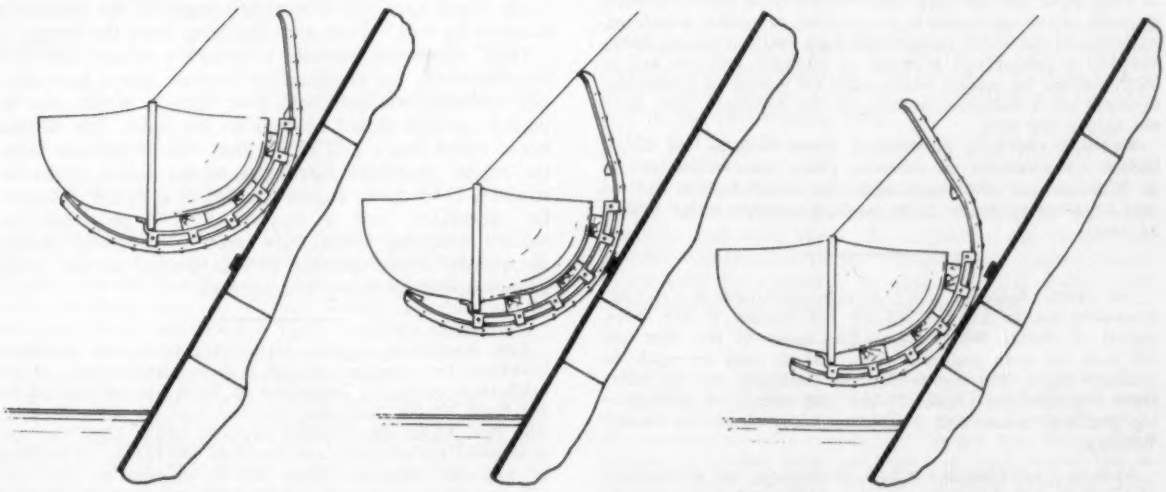
The Pansen skate is designed to achieve two aims. The first is to allow the lowering of a lifeboat against an adverse list of as much as 60 deg: the second is to allow the lifeboat to negotiate discontinuities in the ship's side, such as spaces between superstructure decks or protuberances like rubbing strakes. The general design and appearance of the skate can be seen from the accompanying line drawing and photographs. The latter, incidentally, were taken earlier this year during trials of the skate which were carried out in London for the benefit of Ministry of Transport inspectors. The ship used was the New Zealand Shipping Company's *Ruahine*, and she was made available for the purpose by courtesy of the owners.



Pansen skates fitted to one of the "Ruahine's" lifeboats

This view of one of the skates tested in the "Ruahine" shows the outer quadrant with its nylon rollers. Since these trials the shape of the quadrant has been changed somewhat, the latest shape being that shown in the line drawings below

The basic shape of the skate is similar to one of normal design, and it is secured to the lifeboat and cast off after the lifeboat is in the water in a similar manner. The



These three drawings show the passage of a lifeboat equipped with the Pansen skate past an obstruction on the ship's side. It will be seen that the outer quadrant rolls over the obstruction as though it were part of a wheel. As soon as it is clear of the obstruction it will run back under its own weight until the upper stop engages with the top of the inner quadrant, when it will be ready to encounter another obstruction

Pansen skate allows a lifeboat to slide smoothly down the side of a ship at large angles of heel by removing as far as possible the frictional force at the point of contact of skate and ship's side which would otherwise tend to upset the boat. This is done by equipping the skate with rollers. These rollers are of nylon, bronze-bushed and free to rotate on stainless steel pins. The use of nylon helps to absorb any shock if the lifeboat should swing against the ship's side during lowering, while the materials generally are designed to give efficient operation with the minimum of maintenance.

If, while the skate is rolling down the ship's side, it encounters a projection or a gap too large for the rollers to surmount, a second feature of the design comes into play. The skate itself consists of two parts which can move relative to each other, the outer quadrant carrying the rollers being free to move along the inner quadrant, rolling on bronze rollers which are mounted on the inner quadrant. It is the inner quadrant which is secured to the lifeboat, and when relative motion between the two quadrants takes place it is as though the outer quadrant were part of a wheel rolling down the ship's side. When the obstacle has been passed, the weight of the outer quadrant causes it to drop back into its original position relative to the inner quadrant. The two quadrants are made of light alloy.

Two skates are fitted to each lifeboat, and are secured between the keel of the lifeboat and the inboard gunwale. When the boat is afloat the skates are released by withdrawing a pin at the gunwale end of each, which allows the skate to fall clear.

ESSO RUST-BAN 190

As the result of an agreement with the Esso Petroleum Co Ltd, F. A. Hughes & Co Ltd, London, have become the exclusive distributors of "Rust-Ban 190" in the United Kingdom. Rust-Ban 190 is an inorganic zinc silicate coating developed by Esso and used by them as the standard coating for cargo compartments in their tankers. Before applying Rust-Ban, in one coat, with conventional spray equipment, the ferrous material to be coated should be sand blasted to white metal. On drying a curing solution Rust-Ban 195 is applied by spray, and the coating then forms an inseparable bond with the steel; while a balance between hardness and flexibility ensures that the coating does not flake off under the strain of severe impact.

High humidity, spray or intermittent immersion in either salt or fresh water will not affect the coating. It is also unaffected by such petroleum products as aviation or motor petrols or jet fuels and it will not contaminate high purity products. Rust-Ban 190 is insoluble in aromatic or aliphatic solvents, and is recommended for service where crude oil vapour or immersion in crude oil is expected, as long as the hydrogen level does not exceed 300 ppm.

Rust-Ban 190 will, in confined areas such as the cargo ballast compartments of tankers, cover approximately 200 sq ft/gallon and after application the compartments can be used for either refined or crude products or water ballast within 24 hours.

The South Georgia Co Ltd (Chr. Salvesen & Co Ltd, managers) are to make a bid for the balance of the share capital of Hector Whaling Ltd. The terms of the offer are 24s cash for each preferred share and 9s cash for each 5s ordinary share. The South Georgia Company and its associates together hold 131,000 7½ per cent cumulative participating preferred shares and 798,700 ordinary shares in Hector Whaling.

Andrew Crawford & Co Ltd, shipowners and shipbrokers of Glasgow, will discontinue business at the end of this month. Founded by Mr Andrew Crawford in 1895, the firm would have celebrated 66 years in shipping this year. They have not owned any ships since the *Garryvale* was sold in 1957.

DIESEL TUG "EUROPA"

Powerful Tug With Voith-Schneider Propulsion

A tug fitted with Voith-Schneider propulsion has been built by N.V. Scheepswerven v.h. H. H. Bodewes, Millingen aan de Rijn, Holland. This vessel, the *Europa*, owned by the Nederlandsche Stoomsleepdienst v.h. van P. Smit, Jr, Rotterdam, is for service in the Europoort area of Rotterdam, and as the zone of operation will be in the main between the breakwater at the Hook of Holland and Rotterdam, or in inland waters, it was decided to fit cycloidal propulsion instead of conventional propellers. A sister ship *Azië* was launched last February.

There are two Voith-Schneider propellers, and these have been installed side by side forward, with a skeg aft. There is no rudder. As is now well known, this type of propulsion offers considerable manoeuvrability, and allows a vessel to turn round in a very tight circle and at great speed. The *Europa* is 92ft 6in long overall, has a moulded breadth of 25ft 10in and a maximum draught of 12ft. Both the *Europa* and *Azië* meet the requirements of the Netherlands Shipping Inspectorate for operating at sea within a range of five miles.

The propelling machinery consists of two Stork-Ricardo supercharged diesel engines having a total output of 1,250 hp. These are mounted abaft the Voith-Schneider propellers, which are of the type EY 150 with a diameter of 2,400mm and a length of blade of 1,500mm. It is interesting to note that the propellers for the *Azië* are the 999th and 1,000th which have been manufactured by J. M. Voith G.m.b.H. The total weight of the propellers is about 34 tons. They are controlled from the bridge.

Deck equipment includes a hydraulic winch with two warping heads for handling the towline, and a hydraulically operated windlass with two anchors which can be hauled up into closed recesses in the bows. The towing hook, which has a pull of 60 tons, can be released from the bridge. Auxiliary machinery in the engine room includes a DAF diesel engine coupled to a 30-kW 110-volts DC generator, and a 24-volts 1.2-kW generator for battery charging. There are also a hydraulic pump, electrically driven general service pump, an air compressor and fresh water hydrophores.

The Yugoslav engine works, Titovi Zavodi Litostroj, Ljubljana, has produced its first B & W diesel engine. At the celebration ceremony Burmeister & Wain was represented by Mr Niels Munck, managing director, and Mr Jens Egelund. The new Alpha diesel engine develops about 1,000 bhp and is intended for a coaster for Indonesia, the first of 10 building in Yugoslav shipyards which will be engined by this firm. Litostroj expects to supply B & W Alpha diesel engines totalling about 18,000 bhp this year, while the shipyard Uljanik, Pula, expects to reach a production of 55,000 bhp of large B & W marine diesel engines.

The Hallén Swinging Derrick

SIMPLIFIED FORM OF CARGO HANDLING DESIGNED IN SWEDEN

A form of cargo handling which combines the advantages of deck cranes with those of conventional derricks has been designed by Marinkonstruktioner, Gothenburg, and patents have been applied for in most countries. The new device makes use of the twin topping lift principle which allows easy control of a single derrick.

Deck cranes are steadily becoming more and more popular in new ships, but they have certain limitations; such as their lifting capacity and length of jib, the space required for mounting them, weight, high cost etc. As will be seen from the accompanying drawings, the Hallén derrick is simple in design. Normally they are used for loads of 5 to 8 tons, but loads of up to 100 tons can be handled by changing the tackle. Orders for several Russian ships which are to be built in Denmark and Finland

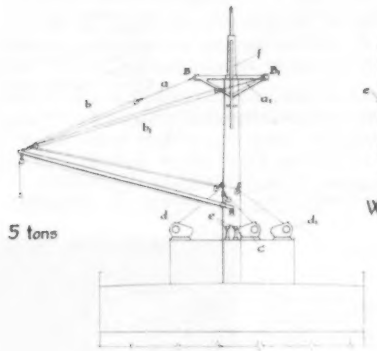


Fig 1 Looking forward

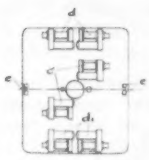


Fig 4
Winch arrangement

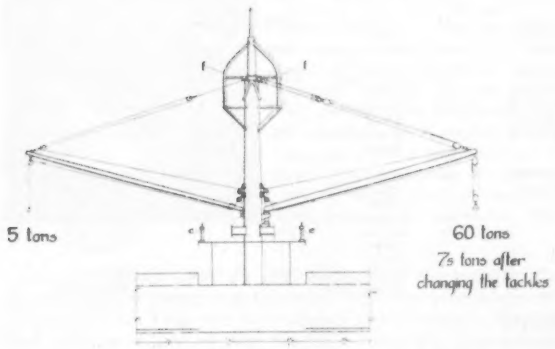


Fig 2 Looking to port

have already been received. The first order for a Hallén derrick was from the Swedish shipowners Rederi A/B Bifrost, and the first ship to be fitted with this form of cargo handling was the French vessel *Gambie*, which was fitted with derricks for light loads by MacGregor-Comarain S.A., who hold a licence to sell in most countries, apart from Scandinavia and Germany.

This new form of derrick can be mounted on all types of mast or derrick post, including the bipod mast which is an earlier development in cargo handling by Marinkonstruktioner. With this device a pair of derricks can be replaced by a single derrick, and the entire gear can be operated by one man by means of two levers. One lever controls all the movements of the derrick, such as swinging, topping or a combination of both movements, the lever being moved in the same direction as that required by the derrick. The second lever is used simply for hoisting or lowering.

180-Degrees Traverse

The derrick can make a traverse from port to starboard of over 180 degrees. A fixed frame outrigger (f) is fitted to the mast, and this has the effect of keeping the topping lifts at a sufficient angle to one another to ensure that the derrick will hang steady even if swung out 90 degrees over the ship's side. It also keeps the derrick stable in all positions even when the ship has a heavy list.

The method of operation can be seen from Figs. 1, 2 and 3. The derrick is supported by two topping lifts

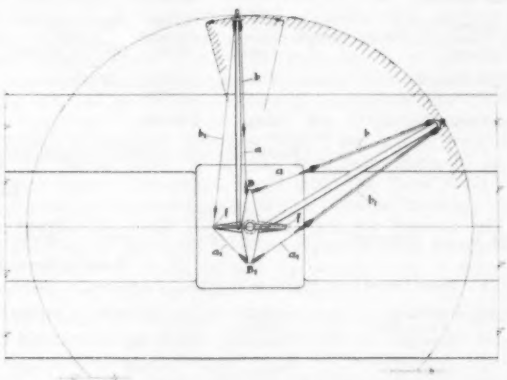


Fig 3 Looking down

FIGS 1, 2 and 3. Views of Hallén swinging derrick showing method of operation

which are attached to the outer ends (b) and (b_1) of the crosstree. Each topping lift consists of a single wire (a) or (a_1), to which is connected a tackle (b) or (b_1). Each derrick is operated by either three or two winches. If three winches are used, two are used for the topping lifts and one for the cargo. If two are used, one of them must be a special winch with two barrels to which the two topping lifts are connected. For electric winches a single-lever control can be fitted, thus simplifying the cooperation of the two topping lifts.

The derrick follows the movements of the control lever. If the derrick is moved forwards the derrick is lowered and if moved backwards the derrick is topped; and if moved to the right the derrick will move in the same direction and vice versa. By control of this lever any possible combination of the swinging and topping movements may be obtained; so that with one lever every movement of the derrick can be controlled.

H.M. Chief Inspector of Factories has revoked with effect from March 31 the certificate, granted in March last year under the Factories Acts, exempting shipyards and dry docks from compliance with requirements in the Acts about safety precautions against dangerous fumes or work carried out in confined spaces on ships under construction or repair. Provision for precautions against shortage of oxygen and against dangerous fumes are included in the Shipbuilding and Ship Repairing Regulations, which come into operation on that date.

NEW CONTRACTS

Shipowners	No. of Ships	Type	Tons d.w. (gross)	Dimensions (ft.) L.b.p.(o.a.) × B × D.(dft.)	Delivery	Speed (knots)	Propelling Machinery	Total h.p.	Engine Builders	Shipbuilders
Yards in Great Britain and Northern Ireland										
Union S.S. Co of New Zealand	2	Cargo	5,700	(360) × 52.5 × 28.75	—	13.25	Sulzer diesel	3,000	—	Caledon S.B. & E. Co
Overseas Yards										
Skibs A/S William Hansens Rederi, Bergen	1	Bulk carrier	17,700	—	1963	15.25	6-cyl G.V. diesel	7,500	Shipbuilders	Uddevallavarvet
Hjal. Road & Co, Tonsberg	1	Bulk carrier	16,000	—	1963	—	Diesel	—	M.A.N.	Deutsche Werft
Irish Shipping	1	Bulk carrier	15,000	—	1962	15	Diesel	7,250	Shipbuilders	Verolme United Shipyards
U.S.S.R.	8 (214/21)	Cargo	5,000	—	—	—	Diesel	—	—	Valmet O/Y
Texaco Inc	5	Tankers	25,300	—	—	17.5	Geared turbine	—	—	Bethlehem-Sparrows Point
Argyll Shipping Co	1 (104)	Bulk carrier	53,000 (35,000)	720 × 106 × 57	—	—	Turbine	13,750	—	National Bulk Carriers, Kure
Skibs. A/S William Hansens Rederi	1	Bulk carrier	17,700	—	1963	15.24 (T)	6 cyl s/c G.V. diesel	7,500	Shipbuilders	Uddevallavarvet
Georg Vefling, Oslo	1	Tanker	41,500	—	1963	16	Diesel	16,800	—	Akers Group
Hamburg Hafen-Dampfschiffahrt	1	Pass. ferry	(3,500)	—	1962	21	Tw-scr. diesel	8,600	—	Blohm & Voss
Polinnia SpA di Nav.	1 (220)	Bulk carrier	23,400 (16,200)	582.4 × 79.25 × 46.6	—	—	Diesel	12,000	—	Cant. Nav. Breda
Lloyd Triestino	1 (221)	Cargo	7,300 (5,400)	413.5 × 60.75 × 36.75	—	—	Diesel	9,800	—	Cant. Nav. Breda
Mystic S.S. Div., Eastern Gas & Fuel Assoc.	2	Bulk carrier	22,000	—	—	—	Diesel	—	—	Brodogradiliste "Split"
Livanos interests	3	Bulk carrier	22,000	—	—	—	Diesel	—	—	Brodogradiliste "Split"
Oak Shipping Co S.A. / Tiger Shipping Co S.A.	*1 ea. (1020/1)	Bulk carrier	44,000 (29,000)	708.7 × 100.4 × 55.6	1962	—	Geared turbine	20,250	—	Kawasaki Dockyard
Esso interests	†3	Tanker	86,000	820 × 111.5 × (44)	—	17	Geared turbine	—	—	Howaldtswerke Hamburg
Barthold Richters, Hamburg	5	Cargo	1,000 (499)	229.75 × 36.1	1964	—	Diesel	—	—	Volkseigener Betrieb Schiffswerk Neptun, Rostock
Polish Ocean Lines	2	Cargo	(12,500)	—	1962/63	—	—	—	—	Odense Staalskibsvaerft

* Further particulars of order previously reported (SW.22.6.61) † Increase in size from 77,000 dwt

LAUNCHES

Date	Shipowners	Ship's Name and/or Yard No.	Type	Tons d.w. (gross)	Dimensions (ft.) L.b.p.(o.a.) × B. × D.(dft.)	Speed (knots)	Propelling Machinery	Total h.p.	Engine Builders	Shipbuilders
Yards in Great Britain and Northern Ireland										
Mar. 3	Dagon Fishing Co	*St. Lucia* (772)	Trawler	(200)	—	—	Diesel	—	—	Richard Dunston, Hessle
Mar. 4	Small & Co (Lowestoft)	*Suffolk Punch* (461)	Trawler	(200)	—	—	Diesel	—	—	Richards Ironworks
Mar. 9	Admiralty	*Alice* (133)	Tug	(40)	—	—	Diesel	—	Lister Blackstone	P. K. Harris & Sons
Mar. 9	Admiralty	*Agatha* (134)	Tug	(40)	—	—	Diesel	—	Lister Blackstone	P. K. Harris & Sons
Mar. 14	John Harker	*Kerrydale H.* (293)	Tank barge	(256)	—	—	Diesel	—	—	John Harker
Mar. 16	Silver Line	*Silverweir* (245)	Bulk carrier	15,500 (11,200)	475 × 67 × 40(28.9)	—	4-cyl diesel	6,640	Wm. Doxford & Sons	Jos. L. Thompson & Sons
Mar. 16	Oregon S.S. Co	*Londoner* (390)	Cargo	13,300 (9,300)	466.25 × 63 × 40.75(29.5)	14	7-cyl Sulzer diesel	6,300	G. Clark	Bartram & Sons
Mar. 16	Pelagic Trawling Co	*Blacktail* (510)	Trawler	(237)	115.5 × 25	11	Two diesels	788	Bristol Siddeley	T. Mitchison
Mar. 17	Ellerman & Bucknall S.S. Co	*City of Dundee* (529)	Cargo	8,600 (7,000)	(434) × 59 × 36.75(26.2)	14.5	8-cyl Sulzer diesel	5,040	G. Clark	Caledon S.B. & E. Co
Mar. 17	P. B. Pandelis	*Ariadne III* (86)	Yacht	(270)	(114.5) × 24.75 × 11.9(7.2)	13.5	Tw.-scr. diesel	1,000	Rolls Royce	Atlantic S.B. Co
Mar. 18	Dominion Steam Fishing Co (Sir Thomas Robinson & Son)	*Priscillian*	Trawler	(300)	120 × 25.5 × 12	—	12-cyl Brons diesel	780	Drypool Engineering	Cochrane & Sons
Mar. 20	Boston Deep Sea Fisheries	*Boston Weelsby*	Trawler	(425)	137.2(139.75) × 28 × 14.5	—	6 cyl Werkspoor diesel	1,050	J. D. Holmes	Cook, Welton & Gemmell
Mar 21	Richard Irvin & Sons	*Ben Vurie*	Trawler	(295)	—	—	Diesel	—	—	John Lewis & Sons
Mar. 21	Port of London Authy.	*Long Reach* (796)	Grab hopper dredger	(2,000)	—	—	Tw. scr. steam recip.	—	—	Fleming & Ferguson
Mar. 29	Basil Mavroleon	*Radiant II*	Yacht	(700)	—	—	Tw.-scr. Sulzer diesel	1,680	G. Clark	Austin & Pickersgill

TRIAL TRIPS

Date	Shipowners	Ship's Name and/or Yard No.	Type	Tons d.w. (gross)	Dimensions (ft.) L.b.p.(o.a.) × B. × D.(dft.)	Speed (knots)	Propelling Machinery	Total h.p.	Engine Builders	Shipbuilders
Yards in Great Britain and Northern Ireland										
Mar. —	Clyde Navigation Trust	*Clyde* (1643)	Launch	(90)	—	10	Tw.-scr. diesel	304	Gardner	A. & J. Inglis
Mar. —	Kyle Shipping Co	*Kylebank* (249)	Cargo	1,550 (1,300)	(228) × 35.75 × (15.1)	—	6-cyl diesel	—	Mirrlees, Bickerton & Day	Clelands (Successors)
Mar. —	Parbel-Smith, Aberdeen	*Admiral Hawke* (893)	Trawler	(230)	(108) × 24.1	—	5-cyl diesel	—	National Gas & Oil Engine Co	Hall Russell & Co
Mar. —	Main S.S. Co	*Trevalgan* (523)	Cargo	10,400 (6,570)	450(487.95) × 63 × (26.42)	14	6-cyl Sulzer diesel	4,800	D. Rowan	Wm. Hamilton & Co
Mar. —	British Transport Commission	*Trinity Sand*	Grab dredger	(1,400)	(212) × 45.33 × (14.67)	—	7-cyl diesel	—	Ruston & Hornsby	Simons-Lobnitz
Mar. 14	Heward Trawlers	*Robert Hewett* (963)	Trawler	(600)	162(180) × 30 × 16.25	—	8-cyl diesel	1,168	Mirrlees, Bickerton & Day	Cook, Welton & Gemmell
Mar. 16	Ministry of Agriculture & Fisheries	*Clione* (1458)	Fishery research vessel	(470)	135(154.5) × 29 × 14.25	—	6-cyl diesel	960	Ruston & Hornsby	Cochrane & Sons
Mar. 16	Houlder Line	*Hardwicke Grange* (744)	Refrig. cargo	9,700 (10,200)	460(489) × 65.5 × 27.42(29)	16	Geared turbine	8,500	Shipbuilders	Hawthorn Leslie
Mar. 27	Clan Line of Steamers	*Clan Fergusson* (1917)	Cargo	9,000 (8,300)	460 × 62.25 × 37.5	16	6-cyl Sulzer diesel	7,100	Wallsend Slipway	Swan Hunter, Wallsend
Mar. 22	Stag Line	*Photinia* (607)	Bulk carrier	10,350 (7,660)	450(497.67) × 60 × (25.5)	13	4-cyl Doxford diesel	4,000	N.E. Marine	John Readhead & Sons

MARITIME NEWS IN BRIEF

WILLIAM DOXFORD & SONS LTD and Sunderland Shipbuilding Dry Docks & Engineering Co Ltd have reached agreement on a basis of amalgamation. The merger of the two companies will be effected by Doxford making an offer for the ordinary share capital of the Sunderland Company. The offer will be 5 Doxford stock units for every 6 Sunderland shares. On the merger becoming effective there will be an appropriate change in the name of the Doxford company and a number of the Sunderland directors will join the Doxford board.

ONE OF the largest lengthening operations of a dry cargo ship to be carried out so far in Western Europe, will be undertaken by Boele's Shipbuilding & Engineering Co Ltd, Bolnes, Holland. The vessel is the *Crowborough Beacon*, owned by the Medomsley Steam Shipping Co Ltd, an affiliate of Phs. van Ommeren (London) Ltd. The vessel, which at present has a length of 425ft, will be lengthened by 59ft 6in. At the same time she will be converted from an open to a closed shelter-decker. The tonnage of about 9,720 dwt will be increased by about 3,600 tons. The owners are contemplating a further contract for the lengthening of a sister ship.

MR W. M. DOCHARTY, a director of the Moss Hutchison Line Ltd, and Glasgow manager of the General Steam Navigation Co Ltd, has retired after 49 years with the P & O group.

MR KENNETH MACKAY, engineering commercial manager of Fairfield Shipbuilding & Engineering Co Ltd, has been invited to discuss diesel engines and other equipment needed for the 1962 East German shipbuilding programme with the German Head of State, Herr Ulbricht.

MR ALAN REARDON-SMITH has been appointed chairman of Reardon Smith Line Ltd and the Leeds Shipping Co Ltd. He is vice-chairman of Sir William Reardon Smith & Sons Ltd. He joined the family concern in 1931 and after spending some months in a shipbuilding yard sailed in one of the company's vessels for one and a half years to gain experience. He served in the Royal Artillery during the war and was taken prisoner in Java. On his return he was made a director of the group of companies and became vice-chairman in 1957

MR H. HAMBLING, Shipping Federation registrar at the King George V Dock, London, since 1957, has been appointed secretary of the Tyne and Blyth district of the Shipping Federation, and secretary of the North of England Shipowners' Association. He succeeds Mr J. J. Pickering, who has retired through ill health.

MR H. C. BROCKEL, Municipal Port Director of Milwaukee, Wisconsin, has been appointed to the emergency post of Great Lakes Port Controller for all port systems and facilities or U.S. waters of the Great Lakes and the St Lawrence River. Mr Brockel's authority will become effective only in the event of war or other national emergency, and does not extend to normal peacetime conditions.

MR J. H. MILTON, Principal Surveyor in charge of the Engineering Investigation Department of the Chief Engineer Surveyor's staff of Lloyd's Register of Shipping, has been promoted to succeed the late Mr R. Shaw as Principal Engineer Surveyor for the North East Coast area.

THE DEATH has occurred of Mr Percy Ross, former president of Hull Fishing Vessel Owners' Association and a well-known figure in trawler owning circles for many years.

MR ALAN DIXON, shiprepairing manager of Blyth Dry Docks & Shipbuilding Co Ltd, Northumberland, has retired. He has been with the Blyth yard since 1935.

MR E. F. CHOPPEN will rejoin the board of directors of Esso Petroleum Co Ltd on April 4 after completing a year's assignment with Standard Oil Company (New Jersey) in New York. Mr L. B. Johnson has also been appointed a director of the company.

MR JOHN CAMPBELL, deputy general manager of the Elderslie Dockyard of Barclay, Curle & Co Ltd, is to retire at the end of March after 35 years with the company. He will be succeeded by Mr Malcolm McLean, the works manager at Barclay Curle's repair works at Govan.

THE 1,710-tons destroyer *Chieftain* has arrived in the River Wear to be broken up by Thomas Young & Sons. The vessel was laid down in 1943 and completed in 1946.

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P & O-ORIENT LINES have made some readjustments of fares over many of their routes and are also introducing a reduction in tourist-class and one-class fares homewards from Australia. These reductions are by as much as 20 per cent on some of the lower rates. First-class fares between the United Kingdom and Australia have not been altered. At the same time it has become necessary to increase the outward one-class and tourist rates from the United Kingdom to Australia by amounts averaging from 2 per cent to 9 per cent. On the Pacific routes most rates have been increased on an average from 5 per cent to 9 per cent. The Shaw Savill Line have made a 30 per cent reduction of one-class passenger fares to Britain via South Africa. The fare via Panama will be reduced by 15 per cent. One-class fares in Shaw Savill ships from Britain to Australia will be increased by 9 per cent. The new fares will operate from July 1.

MR HARRY C. BUSTARD, director and general manager of the Mercantile Dry Dock Co Ltd, Jarrow, and Mr T. A. Greenwell, joint managing director of T. W. Greenwell & Co Ltd, Sunderland, have been re-elected chairman and vice-chairman respectively of the North East Coast Shiprepairers' Association.

MR GEORGE AITCHISON, head of the naval architecture department at Sunderland Technical College, is to retire at the end of the summer term.

MR P. H. MITCHELL and Mr A. G. Sasse have been re-elected chairman and deputy chairman respectively of the Salvage Association.

MR C. S. COCKERELL, inventor of the Hovercraft, has been

NEW PILOT LAUNCHES FOR BAHRAIN

Thames Launch Works, of Twickenham, have completed two steel pilot cutters to the order of the Crown Agents for Overseas Governments & Administrations. Named "Mahooz" and "Jufair" the cutters have been built on the round bilge principle with raked stem, transom stern and flush deck. The vessels are divided into five compartments consisting of fore peak, forecastle for crew, engine room, a compartment which comprises a cabin and cockpit and an after peak. The machinery consists of two six-cylinder Ruston & Hornsby diesel engines developing 105 bhp at 1,800 rpm

awarded the "Viva" Shield for 1960 by the Worshipful Company of Carmen. The award is made annually for the most outstanding transport improvement.

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A total of 65,300 overseas visitors arrived in Britain during January. This was a 21 per cent increase on the number of arrivals in the same month in 1960. European visitors totalled 30,100—a 16 per cent increase. The United States, with 10,200 visitors, recorded a 7 per cent increase over January 1960. Traffic from Central and South American countries increased by 31 per cent to 1,400.

Arrangements have been made for a merger of the Blacksmiths' Society with the United Society of Boilermakers, Shipbuilders, & Structural Workers, Newcastle-on-Tyne.

BOAC has received permission to extend its North Atlantic route to Philadelphia, Baltimore and Washington. BOAC already had authority to serve New York, Chicago and Detroit.

The China Navigation Company's pilgrim/cruise ship *Kuala Lumpur*, formerly *Dilwara*, has been air conditioned during the course of her refit by Taikoo Dockyard & Engineering Co Ltd, Hong Kong. The air conditioning system was designed by Thermotank Ltd, Glasgow, who also manufactured the air conditioning equipment.

Swedish shipping companies' gross earnings in foreign shipping rose by Kr135 mn to Kr2,307 mn in 1960, while costs were up by Kr27 mn to Kr1,087 mn. The surplus of earnings over costs thus rose by Kr108 mn to Kr1,220 mn (£84 mn). In 1959, the surplus dropped by Kr15 mn. The increase in the surplus during 1960 corresponds to close on 10 per cent. In the same year Sweden's merchant tonnage was up by 234,000 grt, or just over 6 per cent.

LAUNCH OF THE "GEORGE PEACOCK"

The second tanker in the Pacific Steam Navigation Company's fleet, the "George Peacock", 28,000 dwt, was launched recently at the Belfast shipyard of Harland & Wolff Ltd. The ship's sponsor was Miss Diana Bowes, daughter of Mr H. Leslie Bowes, chairman and managing director of the owners. Also in the illustration of the party are Mr Walter Warwick, former chairman of the shipowners: Mr J. S. Baillie, deputy chairman of Harland & Wolff Ltd; and Dr Denis Rebbeck, deputy managing director of the builders. The first tanker for the Pacific Steam Navigation Company's fleet was the "William Wheelwright," 46,000 dwt, built by Harland & Wolff Ltd last year

The Royal National Life-boat Institution and the Baltic Exchange have agreed that a new 47ft Watson lifeboat, which is now in the early stages of construction and which will later be stationed at Salcombe in Devon, should bear the name *Baltic Exchange*. The present cost of lifeboats of this class is £35,500. The necessary money has been contributed by members of the Baltic Exchange, and it is hoped that their future contributions will meet the full cost of the maintenance of a lifeboat at Salcombe.

MR DAVID K. BUIK has been appointed managing director of Canadian Pacific Steamships Ltd. He joined the CPR in 1931. In 1934 he became secretary to the general manager and vice-president, Montreal, and secretary to the president. In 1947 he became assistant to the managing director of CPS. He became a director of CPS in 1952 and assistant managing director in 1956. He was appointed deputy managing director in 1958. Mr Harry Arkle, whose portrait was published last week, has since been appointed a director and chairman of Canadian Pacific Steamships Ltd

The number of lives saved since the Royal National Lifeboat Institution began to keep complete records in the middle of the last century has now passed the figure of 83,000. In the first two months of 1961 lifeboats were launched on service 111 times. This is considerably more than the figures for the corresponding months of either 1959—the busiest year the lifeboat service has known in time of peace—or 1960.

The opening of navigation through Lock 1 of the old Third Welland Canal at Port Dalhousie, Ontario, will be delayed until May 1 this year due to the construction of a new swing bridge over the upper entrance. The Welland Canal from Lake Ontario to Lake Erie will open on April 1 unless, in the opinion of the Authority, weather and ice conditions do not so allow.

Arrangements are nearing completion for the visit of members and their ladies to Belgium which the Institute of Transport is planning for May 29 to June 7. There are at the time of going to press a few places left; members of the Institute interested should write immediately to the secretary.

Cory Brothers & Co Ltd have received telegraphic advice from their Port Said associates that the Suez Canal Authority will allow vessels that have successfully transitted the Canal at 36ft to make experimental transit at 36ft 6in from the South.

FIFTY YEARS AGO

From THE SHIPPING WORLD of 29 March 1911

The large twin-screw steamer *Scotian* sailed from Glasgow on Saturday afternoon for Halifax and Portland, Me., with 350 second-cabin and 450 steerage passengers, and arrived in the Mersey on Sunday morning, where she embarked 700 additional steerage passengers for Canada. The *Scotian* is the latest acquisition of the Allan Line fleet, and was purchased from the Holland-America Line a few months ago, in whose service she earned a splendid reputation under her original name of *Statendam*. She was built by Harland & Wolff, Belfast, and has a gross register of 10,332 tons; and to adapt her to the special requirements of the Canadian trade she has undergone extensive alterations on the Clyde. After her present voyage she will take her place on the Glasgow-Montreal service of the Allan Line, along with the three other twin-screw steamers, *Grampian*, *Hesperian* and *Ionian*.

The Cunard Company have decided to rename the three passenger steamers they have just acquired from the Thompson Line, for their new Canadian service. The *Gerona* will be known as the *Ascania*, while the *Tortona* will become the *Ausonia*, and the *Cairnrona* the *Albania*. As these three vessels were built at Wallsend-on-Tyne, they bring the number of Cunarders built by Messrs. Swan, Hunter & Wigham Richardson, Ltd., during the past 13 years to nine vessels of approximately 200,000 tons.

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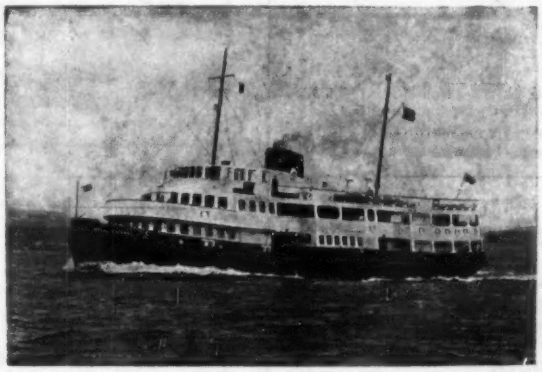

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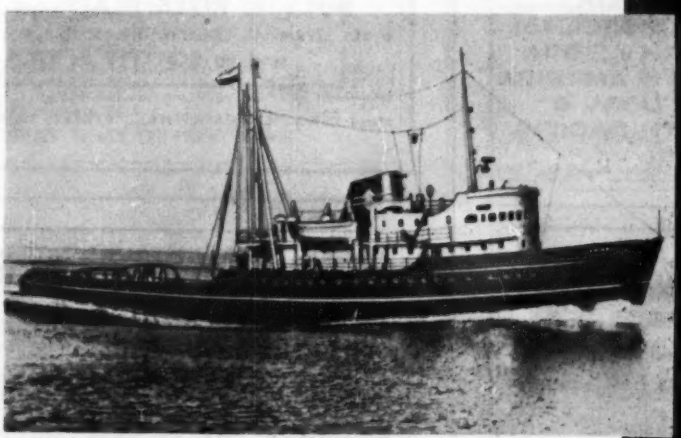

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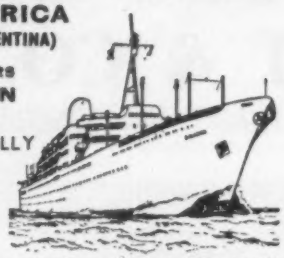

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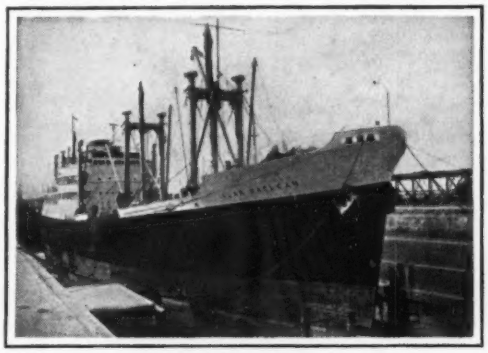

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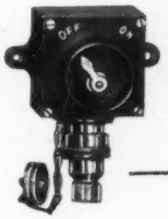

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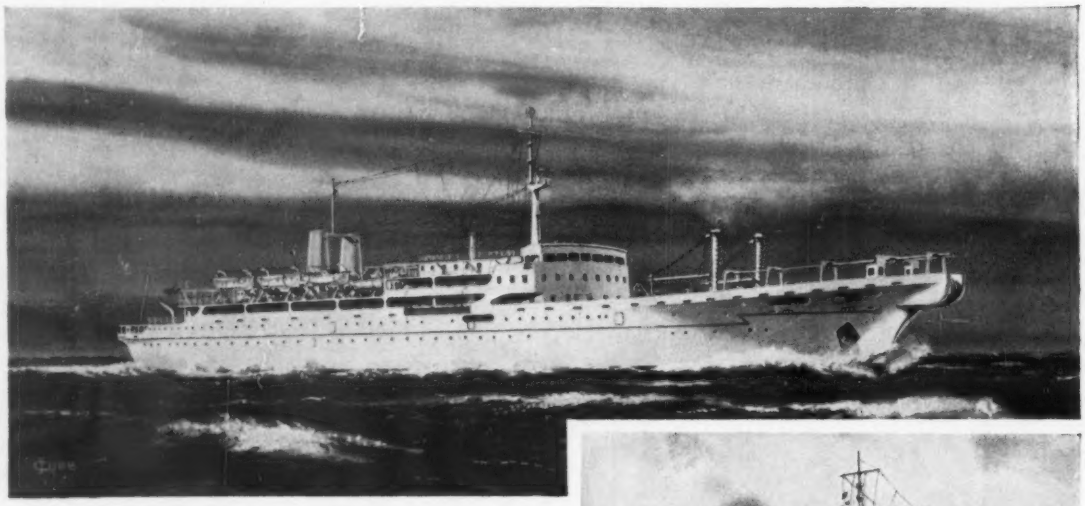

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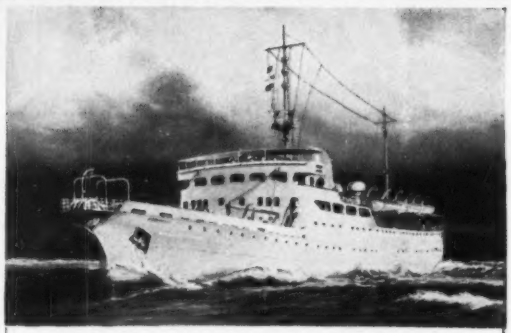

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